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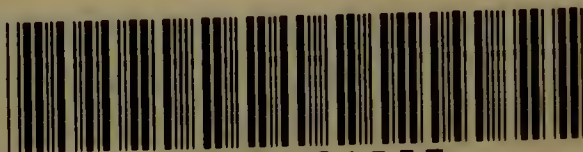
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# A PRIMER OF PSYCHOLOGY

BY

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## PREFATORY NOTE

To my teachers at Cambridge, Professor Ward, Dr. Stout, and Mr. W. E. Johnson, I express my grateful acknowledgments. The extent of my indebtedness to Professor Ward will be immediately apparent to those who have shared the privilege of being taught by him, and I have been under continued obligation to the published works of Dr. Stout for stimulus and suggestion. To Mr. W. E. Johnson, Sidgwick University Lecturer in Moral Science and Lecturer in the Theory of Education in this College, I owe a special debt of gratitude for help and advice in the preparation of this book. I am under a deep obligation to him for his permission to make use of his suggestive method of treatment of the Analysis of Mind, and, throughout the work, but more particularly in the chapters on Cognition, I have freely availed myself of his generous help.

References are given at the end of each chapter to the works of these writers as well as to those of Professor James, to whom I am also much indebted.

L. BRACKENBURY.

THE CAMBRIDGE TRAINING COLLEGE,

*January, 1907.*



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# A PRIMER OF PSYCHOLOGY

## INTRODUCTION

### SUGGESTIONS TO THE STUDENT

THE subject of Psychology will most probably appear, at first, difficult and unattractive, possibly even repellent. Not that the subject itself presents any extraordinary difficulties—like all other sciences it demands only relevant and adequate conceptions, precision in the use of terms, accurate observation, and cautious generalization—but, as the reader will discover, the psychologist is required to take up a new standpoint from which to view that which is already exceedingly familiar to him from other standpoints, and it is not easy to get this new point of view. After some months of study of the subject, an intelligent student, grappling with the problem of how we come to perceive a world of external objects, was discovered in the attempt to get a chair inside his head, and, naturally, he found the operation both difficult and painful. The first thing that the student must do is to get rid of—to dissolve—both chair and head; that is to say, he must learn to look at material objects from a new point of view. He must have regard to what is in his mind, not to what is outside, though he may go on believing, if he will, that there *are* things outside his mind. He need not abandon the commonsense, “dualistic” theory that the universe is made up of mind and matter; but, as psychologist, he must remember that he is not dealing with matter as matter, but only with the effect of matter on mind, and that this is mental, not material.

As the student endeavours to resolve material objects into mental facts, he will do well to try to forget that he has a head. We frequently speak of “getting things into our heads” and of “working with our brains,” and by the use of such phrases the association between

brain and mind has grown so strong that it has become difficult to us to avoid using the terms interchangeably. There is, of course, a reason for these common forms of speech, yet it is true to say that when we set ourselves to think of our mind, we get as much help from thinking of our foot, or of our lungs, as from thinking of our head ; that is to say, no help at all, but only hindrance. If the student will not take the trouble to dissolve or resolve his brain, as well as the rest of his body and all other material things, into mental effects, he can make no progress in the science of Psychology. Students have been known not infrequently to cling to their brains when they have consented to the dissolution of everything else, and obviously, as long as a student does this, he has not attained the psychological point of view.

It is hardly possible by one effort to put oneself into this new attitude to the universe. Familiar associations cannot be broken by mere force of will. The student is advised, therefore, to take to himself the thought that he has to reach a new outlook, and then gradually to feel his way thither. His chief difficulty will lie in grasping the mental processes that the psychologist deals with under the name of Perception, and, unfortunately, these must be considered early in any systematic, logical treatment of the subject. We all of us probably have noticed the working of our mind as far as our emotions, our resolves and purposes, are concerned ; in these matters, therefore, the beginner has something to go upon. The student, consequently, will find the chapters on the Emotions and the Will easier to read than the chapters on, say, Perception and Ideation. Nevertheless, he must have some knowledge of perceptual and ideational processes if he is to grasp the more complex processes we call emotional and volitional. It may, therefore, be advisable for him, if he finds much difficulty in getting the psychological point of view, to read through the earlier chapters of the book ; to read, more thoroughly, the last two chapters ; and then, with increasing thoroughness, to work his way backwards through the book ; and, finally, to re-read the chapters in the order in which they stand. The "General Questions" at the end of the book will be of service in testing this final revision. If the student works in this way, he will



probably find that his hazy notions gradually acquire clearness and definiteness, and that he has attained the psychological outlook.

Another reason for the initial difficulty of the subject, besides that of the new mental attitude required, is the necessity of taking a number of partial views of mind before we can apprehend mind as a whole. This seems to divorce psychological investigations from our actual experiences, and to give the whole subject an air of unreality. It is nevertheless inevitable. All sciences deal with abstractions, and if we ever gain a view of the whole concrete world of things, it will be by the combination of our abstractions. This statement applies not only to the universe, but to each of the realms of matter and of mind. Mind is found to be no simple thing; our first task, then, is to discover its various aspects, to consider them one by one, and then to deal with their relation to one another, whereby the whole is one. This means that we have first to consider abstractions—we call them Cognition, Feeling, and Activity—before we can trace the sequence of actual mental events. When we have grasped our abstractions, it is comparatively easy to detect their presence and to trace their relations in actual mental experiences. The difficulty of working with abstract conceptions can only be overcome by persistent intellectual effort.

Some may find another difficulty in the unfamiliarity of the terms that psychologists use, and perhaps even more in their use of familiar terms with specialized meanings. The psychologist, more than most scientific workers, has contented himself with terms in common use; but no progress can be made in any branch of science without careful definition and precise use of terms. In fact, psychological analysis has been aided by the continued attempt to formulate distinctions between mental occurrences to which the plain man has given different names; only rarely has the psychologist coined words for his own purposes. A glossary of the more important technical terms will be found at the end of the book, and continual reference to it may help the student who tends to be misled by familiar associations or baffled by strange words.

There are, no doubt, people able to overcome all these difficulties who yet find the subject distasteful. This is

a matter of temperament; their attitude is that of the student who asked, "Suppose emotion is what you say; what then?" There are other people for whom the world has been made a much more interesting place to live in by their power and habit of psychological analysis. There is always something to do in the dullest company, and something to relieve the most conventional novels; bores become interesting psychological specimens, childhood and old age acquire a new significance, and personality claims a deeper reverence. Moreover, all the great questions that man persists in asking tend in some minds to reduce themselves to psychological problems. We know of no truth that no mind has held, and can the *truth* be considered apart from the *holding*? Hence one would expect Psychology to be of special interest to those whose claim it is to be the bearers of the torch of truth, and to those whose function it is to impart to one generation the truths that have been gained and held by preceding generations. A knowledge of the working of mind must surely be of service to those who have to deal with the intellectual and moral needs of people very unlike themselves. It is chiefly for students of Theology and of Education that this book is intended. It has sometimes been said that what they need is not a systematic knowledge of Psychology, but rather a knowledge of the results of psychological investigation on which to base their practical work. But the results of psychological investigation cannot be assimilated by those ignorant of psychological method; and, moreover, what is of main service to the teacher is the psychological attitude, and there is no way of attaining this but by psychological study. This need not mean the reading of many books, but it must mean an attempt to work in accordance with scientific principles and on scientific methods, and it is with the purpose of introducing the student to these principles and methods as used by modern psychologists that this primer has been written.



## CHAPTER I

### THE METHOD OF PSYCHOLOGY

PSYCHOLOGY is [the Science of Mind. The student who approaches this subject for the first time probably] thinks of science in the sense in which we use it when we speak of the "natural sciences"—that is, as a body of systematically arranged general statements concerning a special department or aspect of Nature. Now precisely such a body of statements concerning mind constitutes the science of Psychology. The psychologist is, *qua* psychologist, a scientist, not a philosopher. His methods are the same as those of scientific workers in other fields. He observes, frames hypotheses, and draws conclusions as do the chemist, the physicist, and the biologist; he uses, that is to say, those ordinary methods of investigation and inference which form the subject-matter of Inductive Logic. This standpoint of the psychologist, then, is one that is already familiar to the student; it is that of the observer of a class of objects. As the botanist studies plant-life, so the psychologist studies mind.

It is the difficulty of framing a conception of mind that tends to make the student think that the science of Psychology must differ in method and in kind from other sciences. The essential point to grasp is that when we speak of mind as the subject-matter of Psychology we mean *individual* minds. The psychologist has nothing to do, as psychologist, with mind in general—that is, with what mind may be in itself—just as the botanist, as botanist, is not concerned to determine what life is. Whenever we speak of mind, then, we shall mean, not mind in general, but an individual mind, for there is no mind that we can observe that is not some *one's* mind. All our statements, therefore, will have reference to an individual mind, to a *personal mind*. Nevertheless, these statements will

be general, not particular ; that is to say, we regard them as true of *all* individuals, otherwise Psychology would not be a science. If our methods are valid, and if we make no mistakes in our observations and inferences, our conclusions will have universal application to individual minds ; we do not merely make observations upon and draw conclusions concerning particular minds. We arrive at general laws of mind, in spite of the fact that what we are studying is the individual mind.

We may now get a clearer idea of mind if we inquire more precisely what it is that the psychologist observes, and how he makes the observations upon which he bases his general conclusions. Psychology is concerned with the processes of an individual mind, and we each of us can observe one such mind only—namely, our own. This is because mind is individual ; that is to say, that it is mind which constitutes individuality. The science must therefore be studied at first hand ; the statements in the textbooks will be meaningless until the student appeals to his own experience in confirmation (or refutation) of them. The beginner, then, must adopt the method of the expert ; he must observe the workings of his own mind, must study his own conscious experience. Such study obviously involves turning the mind upon itself ; we have to perform the mental process of observing mental processes. Thus, when we become psychologists, we have to play a double part : we must have experiences, and must observe our experiences. The process of observing our own mental processes is called Introspection. This is no new method to the student of science, inasmuch as it is but a species of the genus Observation. Its peculiarity lies merely in the nature of what is observed—in the fact, namely, that the object observed is mental process. What we usually observe are changes in matter ; when we introspect, we observe changes in our own mind. Introspection, like all scientific observation, demands patience and care if the results are to be of any value, and, undoubtedly, practice in the exercise makes us more expert ; but it is no new art that the student of Psychology has to acquire. We all of us, at times, have observed with interest the working of our own minds ; when we become psychologists, we carry on our observations more

systematically by accepting the guidance of our predecessors.

Though introspection is necessarily limited to one mind, the results of all introspective observers, when recorded in language, become available for the psychologist. The student of mind not only takes note of the introspective work of other psychologists, but avails himself of the psychological analyses he finds in novels, as well as of the casual statements concerning their own minds of those with whom he is in ordinary intercourse. Thus the material (or data) of the psychologist is not confined to what he obtains by his own introspection; the principles of his science are generalizations inferred from the recorded results of many observers.

Introspection, then, is the one direct method of obtaining data for the science of Psychology, and it may be exercised either by the psychologist himself or by another. It is not, however, the only available means of getting material; there is an indirect method of observing mind. We say sometimes that we observe other people's minds. Obviously, we cannot do this directly. We can observe, in the strict sense of the term, nothing of another person except changes in his body. These are changes in the world of matter, not mental processes. We have, indeed, good reason to believe that they are the result and the index of mental operations, but obviously they are not themselves mental events. Yet it is only by observing and interpreting bodily changes that we can be said to "observe" any mind other than our own. Such "observation" is really a process of Interpretation.

We *observe*, for instance, a concentrated gaze, the blanching of a face, the trembling of limbs, agitated movements, and flight, and we *infer* that the person under observation has seen something which makes him afraid, and from which he tries to escape. The inference—that is, our judgment concerning his mental state—is gained by an interpretation of his observed conduct, and, in addition to the observation of a particular series of physical changes, presupposes a knowledge of the connection between physical and mental changes. The whole process of Interpretation, therefore, involves (1) the observation of a particular series of physical changes; (2) general

knowledge of the relation between physical and mental series of changes; and (3) an inference from (1) and (2) as to the particular mental series accompanying the observed physical series. We may (1) observe that some one touches a baby's head, that the child frowns and otherwise contorts his face, and that he makes aimless movements; and by (2) applying our knowledge of the relation between the contact of an object with the body and the sensation of touch and our knowledge of the means usually taken to locate and get rid of a sensation, we may (3) infer that the child has a sensation of contact, is unable to locate it, and is thereby displeased.

The general knowledge of the relation between physical and mental changes, required for the interpretative method, presupposes a knowledge of our *own* mind—hence it is true to say that a knowledge of another person's mind implies a prior knowledge of our own, although as a matter of fact it is frequently our desire to understand another person's conduct that makes us observe our own. Introspection, therefore, is the one ultimate method of acquiring knowledge of the working of mind. It follows from this that we can best "observe" those minds which most closely resemble our own. We can most surely interpret the behaviour of people who are most like ourselves, since such interpretation, we have seen, involves an application of the knowledge we have gained from observing the working of our own minds. Now, we tend to find for the behaviour of others the explanation suggested by our own experiences, and it is for this reason that we may easily make mistakes in observing and interpreting the behaviour of animals and children and uncivilized men. We read our own experience into theirs. Hence it is a mistake for the psychologist to base his work upon the mental operations which he supposes to take place in individuals far removed from himself in order of development, and it is an unwise course for a student to begin his psychological work with "Child-study." He must begin by observation of his own mind (Introspection), and must proceed to the Interpretation of the conduct of others by light of the knowledge thus obtained. The closer the resemblance between the minds observed and his own, the surer his work. We



begin, therefore, by studying the mind of the human adult, and when we have gained some knowledge of its processes and some clear conceptions as to what to look for, we may proceed to "Child-study" and the investigation of "Animal Intelligence."

The psychologist, then, has two methods of obtaining the data of his science: (1) the Introspective or Direct Method; (2) the Interpretative or Indirect Method. Both may be called Methods of Observation, and in both Experiment may be used. By experiment we mean making our instances—that is, arranging and controlling the conditions of the occurrence of the phenomenon under investigation. I may be said to experiment when I put myself into a position of danger, or deliberately give myself pain in order to observe my mental state; or when I set another to respond to a given signal, or to learn nonsense syllables, in order that I may observe the working of his mind.<sup>1</sup>

#### REFERENCES FOR FURTHER READING

Stout: *Groundwork of Psychology*, Chaps. I., II.

*Manual of Psychology*, Introduction, Chaps. I., II.

Ward: *Encyclopædia Britannica*, Vol. XX., Article "Psychology," pp. 37, 38.

James: *Principles of Psychology*, Vol. I., Chap. VII.

<sup>1</sup> After reading each chapter the student is advised to consider the questions connected with the subject (pages 110-115).

## CHAPTER II

### THE GENERAL ANALYSIS OF MIND

WE have now to consider what is meant by the terms "our mind," "an individual mind," "individual conscious experience." We have spoken of experience, mind, mental processes and events and operations, and to these terms, which we have used to denote the subject-matter and scope of our science, the student already attaches some vague meaning; but it is necessary for the purpose of clear thinking to make their meaning much more precise. Definition is of little or no use. What mind is can only be known through immediate experience of mind; that is to say, the meaning of the term can only be arrived at by introspection. The question is, then, "What do I mean by 'my mind' or 'my consciousness'?" The student is advised to seek an answer for himself by making now an introspective examination of, say, his experience during five minutes of a lecture. If he writes down the results of his observation, he will have made a record of his conscious experience, of his psychological history, of his mental occurrences, of what was "in his mind," of the content of his consciousness, during the period in question. Having drawn up this statement, he should try to classify the events he has enumerated, placing together experiences of the same kind. To do this he will be obliged to frame general conceptions of those experiences, and such general conceptions are what we need in order to get a clearer understanding of Mind. To arrive at them is to take the first, and the most important, step in our science.

If the student has performed this introspective task, he has, probably, recorded that there were in his mind ideas corresponding to the lecturer's words, and, possibly, other ideas as well, some relevant to the subject-matter under consideration and others wholly irrelevant. He may also

have recorded that he was, at the same time, receiving other impressions through his senses—sights and sounds from within the room and from outside, impressions of contact with his chair, his pen, note-book and clothes. All of these things, then, formed part of his conscious experience, were “in his mind,” during the five minutes in question. (It may be, and probably is the fact, that he was not conscious, at the time, that they were there ; it is only now, as he looks back upon his experiences, that he realizes what they were, and that, had the conditions been different, his consciousness would also have been different.)

Further, he may have recorded that he was attending to the lecturer, that he was trying to follow his argument. He was working—that is, consciously attending to the subject-matter of the lecture, and not consciously attending to the objects which gave him impressions of sight and sound and touch.

Again, the student may have recorded that he was enjoying the lecture, was taking pleasure in the development of the argument, and was being attracted by the subject so that he found concentration on it easy ; or he may have recorded that he was being bored or annoyed by the subject, that his state was not one of pleasure, but of dissatisfaction, and that he felt repelled by the subject and unable to concentrate upon it.

In this record of an individual's conscious experience, we have used three main conceptions :—First, that involved in saying that the student had ideas and sense-impressions ; this is the conception of Knowing or Cognition. Second, that involved in saying that he was at work, that he was attending ; this is the conception of Attention or Activity. Third, that involved in saying he was either being pleased and attracted or pained and repelled ; this is the conception of Feeling or Affection or Passivity. We have thus discovered three distinguishable aspects in the student's consciousness, and we shall see later that these three aspects are invariably present in every moment of conscious experience.

This exercise in introspective analysis has put us in a better position to understand what is meant by *consciousness*, regarded as that which constitutes a person. The student must not be misled by the etymology of the word

into thinking of it merely as a synonym of "knowing," but we may remind ourselves of its etymology so far as to bear in mind that it is derived from a transitive verb. Subject and Object are, therefore, implied by it; the term "consciousness," in fact, stands for a relation, and, as we shall see, for a complex relation, between a subject and an object.

If the student glances again at his introspective record, he will observe that he has said, "*I* had ideas or knew," "*I* felt pleasure," "*I* was attending." Now he was endeavouring to make an exhaustive statement of the content of his consciousness during a particular time, and we found that his conscious experiences could be grouped as Cognition, Attention, and Feeling. Yet, apparently, these terms do not cover the whole of what was in his mind, for *something* or *somebody*, according to his own statement, was knowing, attending, and feeling, and that *something* or *somebody* clearly belongs to the mental part of him. The truth is that it is impossible to state the facts of consciousness without making an assumption—namely, that some *one*, a Subject or an Ego, is conscious. Forasmuch as consciousness implies a relation, it implies two terms, and one of these terms is the thing or person conscious. We seem compelled by the very conception of consciousness, of conscious experience, to assume a Subject or Ego, for we can make no statement about experience without implying an experient—that is, some one conscious. It is well to make this explicit; at the same time, the student of Psychology is not bound to go on to consider the implications of this assumption. These he may leave to the metaphysician. As psychologist, he is concerned only with stating and systematizing the facts of individual experience, and this he cannot do unless he is allowed to speak of an Ego or Subject. By Consciousness, therefore, we mean a Subject or Ego knowing, feeling, and attending.

But consciousness, we reminded ourselves, is derived from a transitive verb—and that an *object* is implied by it. The subject or experient is conscious of *something*; something is known; something pleases and attracts, or pains and repels; something is attended to. This is what is meant by saying that consciousness implies an object, as well as a subject, and stands for the relation between them.



What we did just now in our introspective exercise was to determine the happenings in consciousness during a given period ; what we have to do further is to ascertain what is essential to consciousness at any moment. We have been regarding consciousness as a stream and we set ourselves to describe a part of its course. Now the stream of consciousness can be conceived as made up of an indefinite number of momentary states of consciousness. Each such whole state is called in technical language a *psychosis*. The task before us, then, is the analysis of a psychosis—that is, the *general* analysis of mind. The theory of the psychologists is that in every psychosis at least three different elements, or factors, or aspects, are to be distinguished. It is said that consciousness, *at every moment*, implies—

a subject  $\left\{ \begin{array}{l} \text{knowing} \\ \text{being pleased or pained by} \\ \text{attending to} \end{array} \right\}$  an object.

We can infer these three factors, this three-fold analysis, *a priori* from a consideration of the nature of the relation between subject and object.

First, we can conceive the relation to be such that the subject does not alter the object, nor the object the subject. It may be represented thus :

Subject ————— Object.

Such a relation is that of Cognition. It is the bare relation in which the subject *knows* the object, or, what is saying the same thing, it is the relation in which the object *is presented to* the subject. It is a unique, ultimate relation, and therefore we cannot analyse or define it. It is never separable from the other ultimate relations implied by consciousness, but is distinguishable from them. Knowing, then, is the bare relation between subject and object by which the subject is aware of the object and the object is presented to the subject :

$\left[ \text{Subject} \frac{\text{is aware of}}{\text{knows}} \text{Object.} \right]$

The term Cognition means all that is included within the brackets, for it is a relation which, like every relation, implies its terms.

Secondly, the relation may be such that the object affects or alters the subject, but the subject does not affect or alter the object. The nature of this relation may be represented thus :

Subject · ←————— Object.

Such a relation is that of Affection, or Passivity, or Feeling. It is the second unique and ultimate relation between subject and object that we distinguish in consciousness :

Subject	is affected by ←————— is pleased and attracted by or is pained and repelled by	Object.
---------	--	---------

Pleasure and Pain (the hedonic state of the subject due to the object) are called by psychologists Feeling ; and Appetition and Aversion (the tendencies in the subject aroused by the attractive or repelling force of the object) are called conative tendencies or Conation. Feeling may be used, then, as we have already used it, in a wide sense, as equivalent to Affection—that is, as including Pleasure-Pain and Conation—and in the narrower sense, in which it is more frequently used, as equivalent to Pleasure-Pain or “Hedonic-tone.”

Thirdly, the relation may be such that the subject affects or alters the object, but the object does not affect or alter the subject, and may be represented thus :

Subject —————→ Object.

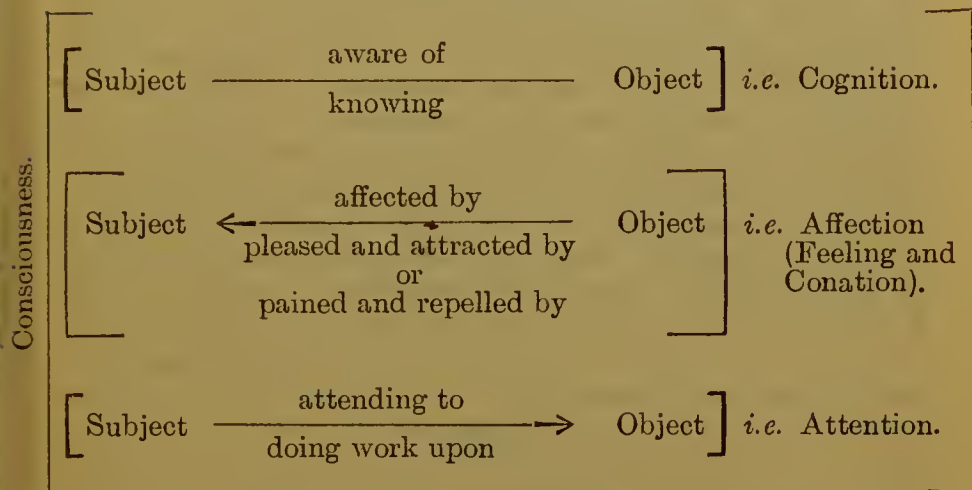
Attention or Activity, the third unique and ultimate relation, distinguishable in consciousness, is a relation of this nature :

[ Subject	attends to —————→ does work upon	Object. ]
-----------	--	-----------

By consciousness, then, we mean the one complex relation between subject and object, which we find to be analysable into these three relations. It must be clearly understood that Cognition, Feeling, and Attention are

distinguishable factors of consciousness, but are inseparable from one another. There can be no cognition without attention and feeling, no attention without cognition and feeling, no feeling without cognition and attention. We can represent this complex aspect of consciousness by bracketing together the three brackets already given :

ANALYSIS OF CONSCIOUSNESS.



Or, the complex relation involved in consciousness may be formulated more simply thus :

Subject  $\xleftarrow[\text{and attending to}]{\text{knowing and affected by}}$  Object.

We may test this analysis by applying it to the conscious experiences of a student while listening to a lecture. It will be found that the three conceptions it involves apply not only to consciousness in the successive moments, but to consciousness in every moment of the particular time under investigation ; the student, that is to say, was not at one moment attending, at another feeling, and at another knowing, but at each moment he was knowing and feeling and attending.

These three factors of consciousness are not only inseparable, but are also interdependent, the kind and degree of feeling being conditioned by the degree of

activity or attention exercised upon the object known, cognition in its turn being determined by the degree of activity—the greater the activity, the more complex and determinate the object known. The more activity the student exercises in following the lecturer's train of thought, the clearer are his ideas and the greater his pleasure and satisfaction in the subject; the more pleasure he takes in the subject, the more he is attracted by it, the more activity he displays and the clearer becomes his knowledge. Cognition, Affection, and Attention, therefore, depend upon one another and develop together. The development of consciousness means the development of Cognition and Affection and Attention. Now, the test of advance in Cognition is the increasing *determinateness* of the object presented; of advance in Feeling (Affection), is increasing *susceptibility* of the subject; and of advance in Attention (Activity), is increasing *effectiveness*, measured by the amount of alteration in the object. This alteration is of the nature of greater determinateness, and the greater this is the more power has the object to affect the subject—that is, the more susceptible is the subject; and the more susceptible the subject, the greater the reaction upon the object. The development of consciousness involves, therefore, (1) growing determinateness of cognition, (2) increasing susceptibility of feeling, (3) greater effectiveness of attention.

The student will have observed that the aspect of consciousness which we have called Affection—that is, the modification of the subject brought about by the object—appears to be, in its turn, complex, inasmuch as the modification takes the form of Pleasure and Appetition or of Pain and Aversion. Some psychologists regard Appetition and Aversion—that is, Conation—as an ultimate factor of consciousness, not determined by Pleasure and Pain (Feeling). In their view, Conation is an ultimate tendency or impulse to activity, and Activity is, for them, but the working out of this impulse. These writers adopt a three-fold analysis of consciousness into (1) Cognition, (2) Feeling—*i.e.* Pleasure-Pain, (3) Conation—*i.e.* Appetition and Aversion, endeavour towards or from an object. In so far as Conation is being realized, so far the subject is active; Conation, therefore, in their view, is the essential



factor of the *active* side of consciousness. The analysis given in this chapter differs from theirs in regarding Conation as the outcome of Pleasure-Pain and as forming with Feeling what may be called the *passive* or “pathic” side of mind.

In spite of the different ways in which the ultimate relations discoverable by introspective analysis have been formulated, there is general agreement among psychologists as to the nature of consciousness—namely, that consciousness implies a subject (1) knowing objects, (2) pleased or pained by them, (3) “endeavouring” towards or from them, and (4) doing work upon (attending to) them. It is not much more than a question of arrangement whether (3), Conation, shall be regarded as forming one factor with (2), Feeling, or whether (4), Activity, shall be regarded as one factor with (3), Conation.

The object of this general analysis is merely to enable us to get clearer conceptions of what to look for before we set out upon our task of the introspective analysis of particular states of consciousness.

#### REFERENCES

- Stout : *Manual*, Book I., Chap. I.  
           *Grundwork*, Chap. II.  
 Ward : *Ency. Brit.*, XX., pp. 39-44.  
           XXXII., p. 55.  
 James : *Textbook of Psychology*, Chap. XI., or  
           *Principles*, Vol. I., Chap. IX.

## CHAPTER III

### COGNITION : (1) SENSATION

WE shall now consider separately (1) Cognition, (2) Activity, (3) Feeling. It must be borne in mind that each of these terms stands for one aspect only of a psychosis, and that what we examine by introspection is a unity, a whole state of consciousness, made up of these three distinguishable factors. We observe the whole, and try to isolate in thought the aspect under immediate consideration.

By Cognition is meant the subject's awareness of objects or the presentation of objects to the subject. The psychologist takes the ordinary, dualistic view of the universe, as made up of matter and mind; and according to this view, objects, as such and in themselves, are "outside the mind"—they are not in consciousness; but objects known—that is, as presented to a subject—are psychical, are "in the mind." Objects known—that is, presented to a subject—are called Presentations. We distinguish various kinds of Presentations, which are called (1) Sensations, (2) Percepts, (3) Images, (4) Ideas. These are names of the products of four different forms of cognitive activity—namely, (1) Sensation, (2) Perception, (3) Imagination, (4) Ideation or Thought. We shall consider each of these forms of Cognition in turn.

Sensation is the form of Cognition that is ordinarily dependent upon the action of some physical stimulus upon a nerve-ending. This is not a definition. A sensation is an ultimate form of cognitive consciousness, and, therefore, cannot be defined. We must have a sensation in order to understand what a sensation is. We cannot describe *sound* to a person who has never heard. If I should ask a class of students to study with me the sensation *green*, I cannot be sure that we are examining the same object. We may all be looking at the same green

thing, but *green* is that which is in each of our minds ; it is a presentation. There are as many sensations “green” as there are persons seeing the green object, and these presentations may be very different from one another. We can, then, only look within our own minds to discover what sensation is—that is, what sensations we have ; we can say nothing about their nature (except by comparison of one sensation with others).

What we can do is to trace the physical antecedents of a sensation. These consist of two series of changes—one series occurring outside the body, the other series occurring within the body. The sensation *green* which I now have is due, the physicist tells me, to waves of ether of a certain length. These waves are changes, occurrences, in the physical world. They affect a part of my body peculiarly susceptible to their action, and bring about changes in the end of my optic nerve.\* These changes are propagated throughout the length of the nerve until the part of the brain where the optic nerve originates is modified in its turn. This is a series of physiological changes—that is, of changes that occur in the matter of part of my body. When the matter of a particular portion of the brain is modified there occurs, in some way not the least understood, the sensation *green*. We can conceive of the continuity of the change from ether-waves to brain-disturbance, but we cannot, even in thought, bridge the gulf between change in nervous substance and sensation. The former is a modification of matter, the latter a happening in consciousness. Sensation, then, is preceded by (1) Physical stimulation, (2) Bodily irritation.

The investigation of the nature of the various kinds of physical stimuli is the work of the physicist ; the investigation of the bodily irritation, set up by these stimuli, is the work of the physiologist ; it is the sensation itself which is the object of study of the psychologist. The sensation alone is a psychical fact ; the others are physical facts. The quantitative relation between the stimulus and the sensation is the subject-matter of a special science, known as Psycho-physics ; the study of the nervous changes preceding and accompanying sensation has been called Physiological Psychology. With these branches of study we are not now concerned.

The student should realize that what the psychologist is immediately concerned with is individual consciousness, and, as we have no knowledge and can make no guess as to the nature of the connection between mind and body, we do well, at the outset, to confine ourselves entirely to the examination of mental process, so as not to be misled, by dwelling upon the material changes that precede or accompany mental changes, into illusory explanation of the facts of consciousness. The beginner will be tempted to think that if he did but know the constitution and mode of functioning of the brain and nervous system he would have the clue to the understanding of mind, especially of sensation. This is a delusion, and the student is recommended to read some work on the physiology of the nervous system, or a treatise on "Physiological Psychology," to rid himself of it.

The commonly accepted view as to the connection between body and mind may be stated here, for it is where sensation is concerned that that connection seems to be most intimate. The view is that all changes in consciousness—that is, all mental processes—are accompanied by changes in the brain, the central organ of the nervous system, and that the relation between mental and bodily processes is one of concomitance—of simultaneous occurrence. The connection, then, of conscious and neural changes, so far as we can see, is one of time only. There are two parallel series of changes, one physical (brain-disturbance), one psychical (mental process), occurring together, but differing essentially in nature, so far as our present knowledge goes; the one series, therefore, cannot be explained by reference to the other series. This view of the connection between mind and body is known as the Theory of Psycho-physical Parallelism. It is merely a convenient formulation of the known facts; it suggests no explanation of them.

The student, then, is thrown back upon the observation of his own mind for the study of Sensation. He can begin by observing that he has different varieties of sensation—that is, that sensations differ in *Quality*. These differences afford a basis for classification. Sensations of like quality constitute together what is called a Sense, and there are seven or eight senses. (This is one of those statements



which, as we said in Chapter I., can be verified only by appeal to individual experience.)

Psychologists have distinguished :—

(1) Sensations of Light and Colour—*i.e.* a sense of Sight or Vision.

(2) Sensations of Sound—*i.e.* a sense of Hearing.

(3) Sensations of Contact—*i.e.* a sense of Touch.

(4) Sensations of the position and movements of parts of our body—*i.e.* a Muscular Sense or Muscle-Joint-Tendon Sense.

(5) Sensations of Smell—*i.e.* a sense of Smell.

(6) Sensations of Taste—*i.e.* a sense of Taste.

(7) Sensations of Hot and Cold—*i.e.* a sense of Temperature.

In addition to these different kinds of Sensation, we appear to have a vague, general, massive sensation of our body. It may be that this is reducible to sensations of Touch (contact of the tissues of the internal organs with one another) and of Temperature ; but it is as well, perhaps, to recognize as an eighth sense this diffused Organic Sensation.

Each of the seven senses is connected with the functioning of a part of the body with a specially differentiated structure, called a sense-organ. This is obvious in the case of the "Five Senses"; not so clear in the case of the senses we have numbered (4) and (7). The sense-organ of the Muscular Sense is to be found in the differentiated structure of the end of the nerves which control movement. The sense-organ of the Temperature Sense is a recent physiological discovery ; it has been ascertained, by experiment, that there are in the skin Heat-spots and Cold-spots. Each sense-organ is specially liable to be irritated by a particular kind of physical stimulus (ether-waves, air-waves, particles of matter, etc.), and within each sense there are varieties of sensation due to variations in the stimulus (length of wave, composition of the particle of matter, etc.). The study of the special senses does not fall within the scope of this work ; for this the student is referred to larger treatises. It is possible, however, to indicate generally the mode of treatment.

Having determined by introspection the different classes of Sensation, the student should examine one particular

class (say, Sounds) with a view to discovering how sensations of the same quality may differ from one another. It is obvious that they have a quantitative aspect; there may be *more* or *less* of one sound than of another—that is to say, one sound may have greater or less *Intensity* than another. We are here speaking, of course, of the quantity of “sound” as a sensation, a content of consciousness; not of the quantity of the physical stimulus which produced the sound, which may also be studied in its quantitative aspect. The Intensity of sensations is the characteristic of them which is of most interest to the psychologist. He can compare one sensation with another in this respect; he can, further, by observation and experiment, determine the relation between the degree of intensity of a sensation and the quantity of the physical stimulus. Valuable results have been thus obtained, which have been formulated in what is known as the Weber-Fechner Law. It is a statement of the connection between the variations in (1) the amount of the stimulus, and (2) the intensity of the sensation.

Another difference between sounds that the student may observe is that of varying duration. It has been proposed to call this characteristic of Sensation—namely, their duration as apparent to consciousness—their *Protensity*. Experiment shows that the protensity of sensations does not always correspond with the duration of the bodily excitation produced by the physical stimulus; under different circumstances the sensation aroused by the same stimulus may appear longer or shorter.

A third characteristic of Sensation has been distinguished by psychologists in at least two senses—namely, Touch and Sight. It is a quantitative aspect of sensation differing in kind from that of Intensity, and has been called *Extensity*. “Massiveness,” “voluminousness,” are the words that psychologists use to denote this characteristic of sensation. The student must carefully observe his own experiences in order to gain an understanding of what is meant. Dr. Ward thus describes the difference between Intensity and Extensity: “Intensity belongs to what may be called ‘graded quantity’; it admits of increment or decrement, but is not a sum of parts. Extensity, on the other hand, does imply plurality . . .

latent or merged plurality or a ground of plurality." The student, no doubt, will have difficulty in grasping this conception; he should, however, realize that Extensity is an aspect of Sensation that has been discerned by expert introspective observers, and, under their guidance, he should endeavour to distinguish it in his own sense-experiences.

In this chapter we have considered the simplest form of Cognition—namely, that which is dependent upon our bodies being irritated by a physical stimulus. We left aside considerations of the nature of the various forms of stimulation, and of the mode of functioning of the specialized parts of the body susceptible to stimulation, and thought only of Sensation as a happening in consciousness. We enumerated the different kinds of sensations, and observed that sensations of the same Quality differ from one another in (1) Intensity, (2) Protensity, (3) Extensity.

#### REFERENCES

- Stout : *Manual*, Book II., Chaps. I.—III., VII.  
          *Groundwork*, Chap. V.  
James : *Textbook*, Chap. II., or  
          *Principles*, Vol. II., Chap. XVII.  
Ward : *Ency. Brit.*, XX., pp. 50, 51.

#### *On the Connection of Body and Mind*

- Stout : *Manual*, Introduction, Chap. III.  
          *Groundwork*, Chap. IV.

## CHAPTER IV

### COGNITION : (2) PERCEPTION

PERCEPTION is the form of Cognition whereby we become aware of a world of objects, immediately presented to our senses. In dealing with Sensation we excluded direct reference to anything outside our minds. Sensation is material which becomes ours by cognition ; Perception is the working up of the material afforded by the senses. It is probable that there never is a moment when our cognitive consciousness is, as it were, all sensation ; from the beginning, the mind does work upon its sense-impressions. It is sometimes said, therefore, that we never do have a "pure sensation," that our earliest presentations are "elementary percepts." This is true in the sense that we cannot point to any particular experience of ours and say that the cognitive factor of it is wholly sensational ; there is no doubt, from the beginning, that objective reference which is part of Perception. But this does not destroy the utility, for purposes of thought, of the distinction we are making between Sensation and Perception. Like all scientific distinctions, it involves drawing a line where there is none in nature. Sensation and Perception are both abstract conceptions, the work of the psychologist. What is concrete is an actual experience, a psychosis. Sensation and Perception are but two conceptions which apply to the cognitive side of a particular experience. Both involve conscious activity—that is, they are occurrences possible only in an individual mind. But in Sensation the activity of the subject is at a minimum ; it is confined wholly to receiving, to having the sensation ; whereas, in Perception, there is a higher degree of conscious activity involved. The subject modifies, works up, arranges its material.

Three different forms of activity, at least, are distinguish-



able in the process of *perceiving* objects. The first is the modification of the sense-experience, due to the repeated presentation of the same object; the second is the grouping or combination of sensations, occurring simultaneously or successively, so as to form a whole; the third is the attribution to the "wholes" so constructed of a unity of which we have had experience only in our own consciousness. Perception, then, is a complex process involving,—(1) modification of sense-experience; (2) synthesis of sense-experience; (3) projection of the "self." The data for Perception are, then,—(1) sense-impressions—that is, the effect in consciousness of physical stimulation of our sense-organs; and (2) the "self." Perception is the work we do with this material. We are now setting out to study how the baby comes to *know* his rattle; how I *know*—that is, have a perception of—that bird which I now see and hear.

We will consider first the modification of sense-experience. This depends upon a fundamental quality of mind that it has in common with matter—namely, Plasticity. Psychologists have distinguished three effects of this inherent characteristic of consciousness, to which they have given the names (1) Retentiveness, (2) Assimilation, (3) Differentiation.

By *Retentiveness* is meant the fact that a presentation tends to persist. When a presentation has once occurred in a mind, that mind can never be as though it had never had that particular presentation. Without Retentiveness, no progress would be possible; it is the basis for all growth, all development. Development takes place only by a process being modified by a prior process. Retentiveness is the name for such persistence of the effect of mental processes.

The modification of a sensation produced by the persistent effects of preceding sensations of *the same quality* is what the psychologist calls *Assimilation*, a principle that follows from the retentiveness of mind. I have now a sensation *red*, part of my perception of a red tablecloth. The theory of the psychologist is that that sense-impression *red* is not precisely similar to the sense-impression *red* that I had when I perceived the same object yesterday, or that I had the first time that I saw the

table-cloth. It may be that no introspective test that we can devise will reveal differences between successive sense-impressions from the same object ; still, if what we have said about Retentiveness holds good, the theory that no two sensations are precisely similar is valid.

We apply this theory to explain the development of the mind in the power of sense-discrimination. According to the principle of Assimilation, a sensation of the same quality—that is, a sense-impression due to the recurrence of the same physical stimulus—becomes more and more unlike the first sensation of that particular kind, though, as we said, there is, in practice, a limit to the power of testing this process of modification. Sensations of the same quality, then, are continuously being modified in the process of Assimilation. But from the first moment of our conscious experience we have an indefinite number of sensations of different kinds. These are all being gradually and continuously modified by assimilation ; the result is that they are becoming increasingly *different from* one another. *Differentiation* of presentations is the effect of Assimilation.

The principle of the *Progressive Differentiation of Presentations* is the fundamental law of cognitive development. It is the process by which the child comes, in fact, to know the world as it appears to the mature mind ; that is to say, it is the process by which he comes to have sense-experiences similar to those of the adult. A child, it is supposed, does not, at the outset, see *red* as one colour and *orange* as another ; two similar objects, differing only as regards their colour, red and orange, would be indistinguishable by him. But as the red object is repeatedly presented, his sensation *red* becomes modified (in the process of Assimilation) until it approximates to the average grown-up person's sensation from the same coloured object. The same process takes place with respect to the sensation *orange* from the orange object. The result of the two processes of modification by Assimilation is that *red* and *orange*, which were at first hardly differentiated, are now clearly differentiated from one another, and that the red object and the orange object when now presented are *recognized*. Recognition is the test of the process of Differentiation. I have to hear

the same series of notes many times before I differentiate the sound from the sound of other series I have heard, and, when I do so differentiate it, I say I recognize the tune. A process like this is at work throughout the whole of the child's sense-experience ; his world—that is, the content of his consciousness—becomes more and more differentiated. It was, at first, a “distinction-less totality” ; it becomes, in the end, a whole made up of highly differentiated parts.

We can trace this same principle of Differentiation in the process by which an adult grows expert in some particular class of sense-experience. The tea-taster discriminates and recognizes where the ordinary tea-drinker fails to do so. In his case, Assimilation and Differentiation have done their utmost within the sphere of Taste as far as that class of experiences is concerned ; in that department of sense-experience, the tea-taster has many more presentations than the ordinary person—his world is fuller of objects. The training of the artist leads to increased differentiation within the sphere of vision ; the training of the musician to increased differentiation within the sphere of sound.

In order to test his apprehension of the conceptions we have just described—Retentiveness, Assimilation, Differentiation—the student might set himself to improve his power of discrimination within a limited sphere (say, the matching of colours), and to study the mental processes involved. It requires an effort to realize that it is only by similar processes, exercised from our first moment of consciousness, that we have come to know this world, “so full of a number of things.” The student will do well to familiarize himself with this idea. We can, with an effort of imagination, dissolve this cosmos we have made into its primordial chaos. Not only can we merge colours into one colour, sounds into one sound, but also smell into taste, taste into touch, touch into hearing, until we find ourselves thinking, not of sensations, but of one sensation, containing the germ of them all. It is with some such experience, some such presentation, that the individual consciousness begins, and out of it, by progressive differentiation, we have each of us built up our own particular universe.



"The very first sensation which an infant gets *is* for him the outer universe. And the universe which he comes to know in later life is nothing but an amplification of that first simple germ, which, by accretion on the one hand and intussusception on the other, has grown so big and complex and articulate that its first estate is unrememberable. In his dumb awakening to the consciousness of *something there*, a mere *this* as yet (or something for which even the term *this* would perhaps be too discriminate, and the intellectual acknowledgment of which would be better expressed by the bare interjection 'lo!'), the infant encounters an object in which (though it be given in a pure sensation) all the 'categories of the understanding' are contained . . . . The object which the numerous inpouring currents of the baby bring to his consciousness is one big, blooming buzzing Confusion. That Confusion is the baby's universe; the universe of all of us is still to a great extent such a confusion, potentially resolvable and demanding to be resolved, but not yet actually resolved into parts."<sup>1</sup>

We have now to consider Perception, in its second aspect, as a process of synthesis of sense-experience. The sense-impressions that are synthesized may occur either together or in succession. The simplest case to take, perhaps, is that of two sensations following one another. There comes a moment in consciousness when the two together are regarded as forming a whole—when what is attended to is not Sensation (*a*) and then Sensation (*b*) but [Sensation (*a*) followed by Sensation (*b*)]. This is a whole constructed by the exercise of conscious activity, and constituting a very simple form of Percept. Such a synthesis is made possible by Retentiveness, just as it was Retentiveness that made Differentiation possible. Sensation (*a*) happens and persists; while (*a*) is still persisting, Sensation (*b*) happens, and is what it is because Sensation (*a*) happened before it. If Sensation (*b*) had followed upon a different sensation (say, Sensation *x*) it would not have been the same, for in that case *x* would have been persisting in consciousness instead of Sensation (*a*).

From one point of view, then, Perception consists of

<sup>1</sup> James's *Textbook*, p. 15.



the construction of a unity out of a series of sensations, each member of the series being affected by the persistence in consciousness of the preceding members. Each member of the series has a peculiar significance, due to its position in the series—that is, a significance that is due to the persisting effects of the preceding members of the series. This significance which belongs to a series upon its first occurrence has been called *Primary Meaning*. The student will be helped to understand what is meant by examining in himself the process of hearing—that is, of “perceiving,” in the technical meaning of the word—a melody for the first time. The first phrase of the melody may be regarded as the whole that is constructed, and each note in the phrase has, we may observe, a special value or meaning due to its position in the phrase. The melody is a melody partly by virtue of this *Primary Meaning*, the immediate result of *Retentiveness*.

We may now consider the effect in consciousness of a repetition of the same series. Speaking generally, we may say that the whole, made up of members of a series, becomes more complicated. We trace this effect, again, to the fact of *Retentiveness*, the plasticity of mind. To take once more the experience of hearing a melody : when we have heard the same series of sounds many times, it appears to us that when the series has been started—that is, when the melody is begun—we know how it is going on. Not that we could continue the series, but as the successive members of the series follow one another, our mental attitude is, “Just what I expected”; though, when we think about it, we recognize the fact that we had not in our minds a definite image of what we were expecting. Each member of the series involves, as it were, an implicit anticipation of the succeeding members. At this stage, each member of the series has a double significance, due (1) to the effect of the preceding members of the series (*Primary Meaning*), and (2) to the effect of the succeeding members of the series (*Secondary Meaning*). This second kind of significance is due to the persistence in consciousness of the effect of previous occurrences of the same series. *Retentiveness* of such effects is the basis of the process that has been called the *Acquirement of Secondary Meaning*.

The whole that is constructed from the members of the series is determined by the Primary and the Secondary Meaning of the sense-impressions constituting the series, and the construction of such wholes is an important part of the process we call Perception; it begins, as does Differentiation, with the earliest moment of consciousness. Sense-impressions of all kinds that occur serially, whether muscular sensations or sensations of touch or sight or hearing, may acquire this two-fold significance. We may take as an example of a series made up of sensations of different kinds the sense-experiences involved in playing a scale upon the piano. We begin with muscular sensations (M) due to the position of the body when our thumb is on the key-board; this is accompanied by sensations of contact (C) due to the pressure of our thumb on the key, accompanied by the sound (S) of the note. We now place our first finger upon the next key, and get, as we do so, (1) muscular sensations ( $M_1$ ), (2) sensations of contact and pressure ( $C_1$ ), (3) sound-sensations ( $S_1$ ). We have now mentioned six members of the series—M, C, S :  $M_1$ ,  $C_1$ ,  $S_1$  :—and we might continue it indefinitely. The first time we play a scale, the members of this series have Primary Meaning—that is, a special value to consciousness through their having been preceded by particular sense-impressions. After several repetitions of the scale, the members of the series acquire Secondary Meaning—that is, they begin to “mean” that the other members will follow; at any stage in the occurrence of the series our mental attitude is that of implicit anticipation of what is to follow. The whole series becomes familiar to us; one member of it is, as it were, the cue for the next, so that the result of repetition is that we acquire familiarity with the series and facility in producing it.

The student is advised to analyse, similarly, the process that a child goes through in learning to walk upstairs. It involves, he will see, the co-ordination of two series of sensations—one a series of muscle-joint-tendon sensations, the other a series of contacts, a member of either series forming the cue for the occurrence of a member of the other.

We have dealt so far with the process of construction involved in forming wholes out of temporal series of sense-impressions either of the same or of different quality. A

further process of construction is involved in our becoming aware of a world of objects—a process, namely, of making a unity out of a number of sense-impressions of different quality, occurring *simultaneously*; a process, that is, of *grouping* members of different series of sense-impressions, present in consciousness at one and the same time.

We may regard the whole of our sense-experience as formed of an indefinite number of series constructed by the process we have described as the Acquirement of Meaning. Yet these series are not to be regarded as totally distinct from one another; our sense-experience is one—it forms what has been called a continuum. We may regard the various series as continua within a continuum. The further process we have now to consider is that of selecting sense-impressions from various continua occurring together and building them into a unity. The baby sees certain colours, hears certain sounds, has certain sensations of contact and certain muscular sensations, at one and the same moment. This same group of visual, auditory, tactual, and muscular sensations occurs repeatedly. It is not a new and unfamiliar group each time it occurs. Retentiveness produces its effect here as in the case of single sense-impressions and of the series of consecutive sense-impressions, already considered. The effect of the “grouping” of sense-impressions from different series persists; the child grows familiar with that particular group and learns to regard it as a unity—it stands in his experience for what we call his “rattle.” This synthetic process, like the other processes included under Perception that we have already analysed, is one on which we are engaged from the beginning of our conscious life. It is, like them, dependent upon the double fact that the same material object is presented to the mind again and again, and that the effects of presentation are retained by the mind; that is to say, it is dependent upon the “sameness” of matter and the plasticity of mind. This process of synthesis, of building up in consciousness the unity corresponding to a material object, is no doubt accelerated in the growing mind by the action of adults in arranging the child’s environment so that the same groups of sense-impressions occur frequently and at short intervals. If left to himself the child would no doubt in



time "learn" his rattle; that is to say, he would put together certain colours (from his colour continuum), certain sensations of contact (from his touch continuum), certain muscular sensations involved in grasping and shaking (from his continuum of muscle-joint-tendon sensations), and certain sounds (from his sound continuum)—but his nurse helps him to do this more effectively and rapidly, by putting the rattle into his hand and making him shake it (*i.e.* producing at her will the series of muscular sensations involved), by placing the rattle so that the child can easily focus his eyes upon it, and by shaking it so that the sound is made more pronounced and therefore likely to impress the child more than other sounds occurring at the same moment. By such methods, certain parts of different series of sense-impressions become emphasized in the child's mind over others; these occur together frequently, and the selection of them from their various series is the process we have been calling that of synthesis, or the construction of "objects." This process of selection is going on in our minds continually. The grown-up person has made a habit (the effect of Retentiveness) of selecting in the same way always, and we nearly all of us make the same selection—that is, we construct the same "objects." This is due to the fact that we select for grouping those sense-impressions which are immediately concerned with our needs; the first objects that a child learns are those connected with his food. It is due also to the fact that the environment of most of us who get to know one another's minds is very much the same. The selection of sense-impressions for emphasis and grouping by the cave-dwellers, by pigmies, by children, by animals, undoubtedly differs widely from ours. They emphasize for their purposes what ours lead us to ignore.

It requires considerable mental effort to conceive of our "groups"—that is, our percepts—as made up of members of series of sense-impressions, because by no possible effort can we actually perform the process of breaking up the groups. The work of the mind, once done, can never be undone. We can, however, in thought unravel our sense-experience. As before, by an effort of thought, we dissolved our cognitive consciousness into one general sensation, so now, by an effort, we can annihilate objects

and conceive of our knowledge of the world as consisting of series of sensations. This conception helps us to realize what is involved in knowing an object. We have grown so accustomed to perceive the same things that we have difficulty in realizing that we have not always perceived them, and that the Perception of objects is a long, complicated process. It has often been observed that children are not so much interested by conjurers' tricks as are adults. This is because children have not learned to know a stable world of objects; they are only as yet engaged in the process of making selections of sense-impressions and grouping them together. To them, as yet, the world is full of surprises—of conjurers' tricks. As we have said, the action of adults in arranging the child's environment determines very largely what groups he makes—that is, what objects he gets to know; and it is interesting to observe that, in the last resort, all that the grown-up person can do for the child is so to arrange matter that the child's sense-organs are affected and his sense-experiences so far determined.

We have now to consider how the child comes to regard groups of sense-impressions, repeatedly occurring, as caused by objects, and by objects existing when he does not perceive them—as standing, that is to say, for realities other than his own experiences. We can find an explanation only in the third aspect of Perception that we mentioned—namely, the projection of the “self.”

The percept of our bodily self is merely one of those “groups” of sense-impressions whose construction we have been considering; it is the result of a synthesis of certain selected visual, motor and organic sensations having a peculiar permanence (and a specially close relation to feeling). It is, therefore, not a knowledge of self in this sense that we postulate in order to explain the process of the perception of objects. Neither do we assume self-consciousness in the sense of that knowledge of self that we get as the result of introspection; that is the result of a much more advanced cognitive development than that involved in the perception of things as persisting independently of our consciousness of them. Our procedure seems to be this. We treat what we have found by analysis to be synthesized groups of sense-impressions



as though they actually were objects having specific qualities, and we find, as a rule, that experience warrants us in so treating them. The main instrument by which we learn, in the first place, to regard these groups of sense-impressions as external realities is our power of obtaining at will certain forms of sense-experience. We get them by means of *movement*. Movements involve the sensations that we have called muscle-joint-tendon sensations. The child soon learns that he can get series of these at pleasure, and he finds that sometimes a particular series—that is, what is objectively a particular movement—leads to a series of another kind, and sometimes it does not. For instance, the child can get, when he will, the series of muscle-joint-tendon sensations that comes from putting his hand in a particular position; but whether anything comes into contact with his hand or not—that is, whether he gets a series of contact and pressure sensations or not—depends upon conditions over which he has no control. Those sense-impressions which he cannot originate are regarded as due to that which is not himself—that is, they are interpreted as external objects. Knowledge of external objects advances *pari passu* with control of movement, and it is by adapting himself to external conditions that the child learns to know his world. He learns by experience to produce the precise series of muscular sensations that will lead to a desired sensory-series; that is to say, he extends his knowledge by means of *motor-adaptation*, involving that co-ordination of motor and sensory impressions which we have already analysed in the processes of playing scales and walking upstairs.

Having thus arrived at knowing that which is not himself—that is, at knowing an “object”—the child proceeds to regard it as of a nature like that of the only unity of which he has any experience—namely, his individual self. This is done, as we have said, without any explicit, determinate cognition of self. The only experience we have of an individual is of a permanent, active self. It is by analogy with this self that we regard objects as having a unity, a permanence, and a kind of activity (to which we give the name Resistance). This is what we mean when we say that the projection of self is an essential part of our perception of a world of external things.

We have now completed our general survey of the processes involved in Perception, regarded as the working up of sense-material and the interpretation of "objects" as things analogous to ourselves. We have made no explicit reference to one very important form that these processes take—namely, Spatial Perception (that is, the localization of extended bodies in space). We learn to know objects as having a certain magnitude and a certain position—that is, as being at a certain distance from us or other objects. This knowledge is acquired by means of the processes already analysed,—namely (1) the progressive differentiation of sense-impressions (Touch and Sight) based upon original differences in their extensity; (2) the grouping of these differentiated sensations into series so as to form a system of what are called Local Signs—a unique character attaching to each differentiated impression of touch and sight, corresponding to the local character of the physical irritation involved; (3) the co-ordination of these series of differentiated sense-impressions—each with a different local sign—with series of Motor-sensations. In the case of sight, these motor-sensations occur in the adjustment of the eye-ball by means of its apparatus of muscles; in the case of touch, they occur in movements of the limbs and of the whole body. The combination and co-ordination of sense-impressions derived from the two senses—Touch and Sight—accelerates our perception of space. To understand the whole process fully, the student must apply the general principles we have just enumerated to particular conscious experiences. For guidance in this detailed work he is referred to larger treatises.

## REFERENCES

- Stout : *Manual*, Book I., Chap. II.  
                     Book III., Div. I., Chap. I.  
                                     Div. II., Chaps. I.-V.  
                     *Groundwork*, Chaps. VII.-IX.  
 Ward : *Ency. Brit.*, Vol. XX., pp. 45-47, 51-57.  
                                     Vol. XXXII., p. 57.  
 James : *Textbook*, Chap. XXI., or  
                     *Principles*, Vol. II., Chaps. XIX., XX.

## CHAPTER V

### COGNITION : (3) IMAGINATION

So far we have dealt only with forms of Cognition immediately dependent upon the actual irritation of our sense-organs by some physical stimulus ; we have now to consider other and higher forms of Cognition which are not immediately dependent upon physical stimulation. The mental products of these higher processes are sometimes called Representations, or Secondary Presentations, to distinguish them from sensations and percepts, which are called Primary Presentations, or simply Presentations. After a certain early stage of development has been reached, we can indeed discover in one and the same mental product both Presentative and Representative elements. It is usual to call such a product—a product, that is, of a Presentative-Representative process—a Percept ; but this use of the term must be distinguished from that adopted in the last chapter, where we limited the term to those mental products conditioned immediately by physical stimulation. More than mere Perception, as we have defined it, is involved in my mental attitude as I say, “That is a blackbird I hear,” “A ship I see on the horizon,” “My friend, coming to meet me.” In these cases the actual percept—that is, the *presentative* element—is a series of sounds or a small coloured patch which we locate at a certain distance from us. Nevertheless, it is said that we “perceive,” have a perception of, a bird, a ship, a particular person. Perception in this sense is not merely the resultant of the processes analysed in the last chapter ; it involves, besides those processes, *representative* elements due to the more or less explicit reinstatement in consciousness of past perceptual experience.

The subject of this chapter is the conditions of (1) the origin, and (2) the recurrence in consciousness, of those



copies of percepts that we call Representations or Images. The student must observe the sense in which the term "image" is used in Psychology ; it stands for the "copy" of *any* kind of percept, whether based upon visual, auditory, tactual, or muscular sense-impressions. It is better for us to begin our examination of the process of Representation with images in their full and independent form, not with those presentative-representative complexes that we have just referred to.

The older psychologists failed to recognize that there was a problem of the origin of images ; they contented themselves with investigating the conditions of their appearance in consciousness—that is, the relation of images to one another in a train of thought. Recent psychological work shows, however, that we need not regard as impossible of explanation the problem of how I come to be able to see, with my mind's eye, a chair, a sea-gull, a cliff, when no chair or bird or rock is being presented to my senses. We can only indicate the line the inquiry is taking. It appears obvious that, if images are not ultimate, they emerge as the result of mental activity exercised in perceptual process. We seek for the origin of images, then, in our perceptual experience, and find it in that "implicit anticipation" which constitutes what has been called Secondary Meaning. In the process of the acquirement of Secondary Meaning our mind takes a prospective attitude ; each member of a series "means" to us that which is to follow, but, as yet, we can frame no image of what does follow. The "meaning" is of the nature of an image, but it has no existence apart from that of a particular sense-impression, a member of a particular series ; it is "bound to," "implicate in," that sense-impression. Should anything happen to set it free, it would have an independent existence as a specific product of mind, an image. What are the conditions that conduce to such a breaking away, to the making of an image ? Let us suppose that we have grown familiar with a particular series of co-ordinated motor and sensory impressions that has always culminated in a particularly interesting experience, so that every member of the series "means" the oncoming of that specific final experience. Now, let us suppose that the series unfolds itself, rolls itself off member by member in the familiar

way; but, owing to a change in our environment, the culminating experience—that is, the last member of the series, which was being “implicitly anticipated”—does not occur. Might not this shock be enough to give separate existence to that part of the “meaning” of the series that was found at fault? If so, should we not have an *image* of the experience that had been implicitly anticipated and did not occur? This is the theory of the origin of images—namely, that they are due to what have been called *disconcerted pre-perceptions*, and that they occur sporadically in the course of our perceptual experience. Occasions for the emergence of images are due to the complexity (“uniformity flecked by diversity”) of the material universe and the necessity of our adapting ourselves to it in order to satisfy our wants. Following Dr. Ward’s treatment, we will take an illustration from the supposititious experience of an animal, rather than from the actual experience of a child, because the motor-adaptation of the higher animals is more complete than is that of the child. [The student must be reminded, however, that it is doubtful whether animals ever do get free images. Their behaviour is explicable generally on the assumption that their cognitive consciousness does not reach beyond a perceptual level—beyond, that is to say, the co-ordination of processes involved in motor-adaptation to the material universe.] Suppose that a mouse has grown familiar with a particular co-ordinated series of motor and sensory impressions, culminating in a sensation *sweet* gained by a nibble at a lump of sugar in a particular corner of the larder-shelf; suppose it happens once that the familiar series fails to culminate in *sweet*, but ends instead in *salt*, for the basin by mistake has been filled with lumps of rock-salt. In these circumstances, may we not suppose that the creature has in consciousness a copy or image of the experience *sweet*—an image, that is to say, of the particular thing that was being implicitly anticipated?

Now the world is such that “disconcerted pre-perceptions” are not of infrequent occurrence, and we may suppose that the process of making images, once started, goes on apace, apart from the conditions which originally set it going, and that one image will lead to others. For



instance, we can conceive the mental attitude of the individual, who has grown familiar with two similar series, one culminating in "sweet" and the other in "salt," to be, "Will it be sweet or will it be salt? If it is sweet, I will taste; if not, I will run elsewhere." In this attitude four images are implied—sweet, salt, myself tasting, myself running; and, moreover, images made determinate by ideas, a process that has to be considered in the next chapter. It is interesting to observe that disconcerted pre-perceptions are likely to occur earliest and most frequently in the experience of the individual who constructs and grows familiar with the largest number and greatest variety of sensory-motor series. It is by activity of this kind—that is, motor-adaptation—that we learn to satisfy our bodily needs; it is, therefore, in the processes necessary for the satisfaction of such needs that the higher forms of mental activity take their rise.

Now, assuming that the individual whose mind we are studying has the power of making images, we have to consider, further, the conditions under which images recur to the mind; we ask, that is to say, how it is that certain past experiences tend to be reinstated in consciousness on a particular occasion. The law, stated in the most general terms, is that when in our present experience there occurs an element which previously occurred as a constituent of another experience, then the whole of that previous experience tends to recur to the mind. As we have said, we may consider the whole of our individual experience as made up of successive states of consciousness. If we call the process whereby the cognitive experiences of any one moment form a unity, a process of Integration, then the law of the reinstatement of past experience that we have just formulated may be expressed by saying that we reintegrate (*i.e.* reinstate in consciousness) that which which we have previously integrated. Integration, therefore, determines Reintegration. This is a summary statement of what is known in Psychology as the Law of Association. Until recently, psychologists used to formulate two fundamental laws of Association, called the Law of Contiguity and the Law of Similarity. It is now generally admitted that there is but one law of Association, and that the principles of Contiguity and Similarity are, there-

fore, but two ways of explaining the same ultimate fact of mind. We may take one actual instance of Association and analyse it in accordance with either of the two principles, Contiguity and Similarity. I see a stranger, and, thereupon, I find myself thinking of an acquaintance. I say the stranger "reminds" me of my friend, and what we have now to analyse is what is involved in thus being "reminded." Of the same fact we can offer two explanations, reducible to one.

(1) The perception of the strange person is part of a whole cognitive experience; but it is a complex factor, being made up of "elements" consisting of visual impressions of form and colour. One of these elements, the presentation of, say, a bronzed complexion, has been in my experience before; but then it formed part of a different complex—was combined, that is to say, with other visual impressions of form and feature. The whole of this complex and possibly other components of the same whole cognitive experience recur to my mind as "images," and thus "my friend" comes to mind. This explanation is on the lines of what used to be called Contiguity; the bronzed complexion (the "reminder") had been "contiguous" previously with certain features which now recur to the mind. The principle involved is precisely the same as in the case in which a person "reminds" me of the place where I met him.

(2) The other mode of explanation which may appear at first sight the more obvious one for this particular instance is that of Similarity. I see a stranger in certain surroundings—I have, that is to say, a certain whole state of cognitive consciousness. I next find myself thinking of another person in other surroundings—that is, a whole previous state of consciousness is reinstated. I am reminded of just that particular experience, it is said, because it is similar to my present experience. There is similarity between the two states of consciousness involved, inasmuch as the person I am reminded of has, let us say, a bronzed complexion like that of the person whom I now see. It will, perhaps, be obvious to the student that this second analysis of the case is less thorough than the former mode of analysis, and if we take the analysis one step further it will be seen that the principle involved is that

which we used in explaining the case by Contiguity—namely, the presence of a common element in the two states of consciousness, an element, previously connected with other elements, now reinstated. If two wholes are similar it is by virtue of their possessing a common element ; similarity means partial identity. What led to the recall of the previous state of consciousness was the presence in the immediate state of consciousness of an element (certain colour sensations) which had been present in the previous experience—that is to say, which had been contiguous with the other elements, now reinstated.

To satisfy himself that there is but one principle of Association—namely, a tendency to reintegrate what was previously integrated, on the recurrence of any one factor of the original integration—the student is advised to take a number of instances of reinstatement and to seek to explain each by reference to the two principles of Contiguity and Similarity. For example, let us analyse the process of reintegration involved in Butler's simile in *Hudibras* :

And like a lobster boil'd the morn  
From black to red began to turn.

We may suppose that the poet began by having an image of the dawn in which one special feature was emphasized—namely, the change of colour in the sky. That particular element—change from black to red—had been in his mind before ; that was when he had happened to see lobsters being boiled. That whole state of consciousness tends, therefore, to recur. This is explanation by reference to the principle of Contiguity—the previous connection of a particular element with other elements. Or we may suppose that Butler was watching a sunrise and suddenly found himself thinking of the boiling of lobsters, on account of the similarity of the two phenomena. This is explanation by Similarity between the two wholes—a similarity constituted by the presence in the two experiences of a common element—namely, the apprehension of colour changing.

It is not to be supposed that either analysis represents adequately the writer's actual mental process. As we have done before, so we are now again isolating in thought



what, in actual experience, is always found in combination with other factors. We are dealing with Imagination only, and are, for the present, ignoring its connection with Ideation or Thought; hence the inadequacy of our analysis of an actual experience. This method of procedure is, however, that which takes us furthest in the end.

The principle of Association, then, is merely the principle according to which a percept or an image recalls an image to the mind. Such processes of recall form a much more prominent feature of some minds than of others, but those minds are not necessarily of a higher order. It is the nature of the experience that occurs to the mind and its relevance to our present need that are of more importance than the mere revival of a past experience, and we shall consider such points when we come to deal with Thought; now we are concerned merely with what determines trains of images. A two-fold condition is required,—namely (1) the occurrence of some percept or image of some object, presented before, which now acts as a cue for the reinstatement of a past experience; and (2) the presence in that past experience of certain characteristics, which are the determining cause why it is that particular experience, and no other sharing a common element with the present experience, that is reinstated.

If the student will examine a number of instances of reinstatement of images he may be able to determine for himself the characteristics that a past experience must have for it to be recalled. He will discover that it is an experience (1) that has *frequently* occurred; or (2) that has *recently* occurred; or (3) that, though it may only have happened once, and that long since, was a peculiarly *vivid* experience. The frequency, the recency, and the vividness of experiences are the characteristics which tend to ensure their recall.

We have now to consider the different forms of Imagination. They have been distinguished as (1) Reproductive, (2) Constructive. The purpose of Reproductive Imagination is the mere revival of past experiences as they occurred; the test of success would be to find that the reproduced experiences corresponded exactly and completely with the original experiences. We exercise Reproductive Imagination when on our return from an ex-

pedition we relate our adventures ; in doing this, we reinstate in our consciousness former experiences. The person to whom we relate our adventures has also to exercise reproductive imagination in order to follow our story ; but his aim is not that of mere revival—it is that of getting in his own mind images like those in our mind. To get them, he must select from and modify his reproduced experiences ; hence the process is one of the *construction* of images under the direction of another. It may be worth while to enumerate the various series of conscious processes involved in B's following A's story. In A's mind there are (1) the reproduction of past experiences from which he makes a selection to give to B (we are for the present purpose ignoring the Activity involved in making this selection) ; (2) the production of the words and gestures which express his train of images. In B's mind there are (1) the perception of the words and gestures and the understanding of them (which latter process we have to deal with in the next chapter) ; (2) the reproduction of past experiences called up by their connection with the words, in accordance with the principle of Association ; (3) the selection from and modification of the experiences reinstated by the apprehension of the meaning of A's words. It is the process (3) in B's mind which is a process of Construction. It has been proposed to call it Interpretative Imagination, inasmuch as it is a process of the modification of experiences reproduced in accordance with a system of signs, expressive of what is in another person's mind. A high degree of power of imagination of this kind must be attained before the interpretative method of observing mind, described in Chapter I., can be efficiently used. It is by means of the exercise of Interpretative Imagination that children follow the descriptions and narratives of the teacher, though, as we have indicated, more than imagination is involved. The measure of success in Interpretative Imagination is the degree of correspondence attained between the trains of images in the two minds concerned.

There is a second kind of Constructive Imagination which has been called Originative Imagination.<sup>1</sup> This

<sup>1</sup> The terms Interpretative and Originative Imagination have been suggested by Mr. Johnson.



may involve a greater degree of modification of reproduced past experiences than does Interpretative Imagination, and its purpose is different. In Originative Imagination the reconstruction of reproduced experiences is carried on in accordance with an idea of a whole that is being formed by Imagination and Thought. This idea—it may be the outline of a plot or the conception of a character or the composition of a picture—is the cue which serves to reinstate past experiences from which a selection is made for modification; whereas, in Interpretative Imagination, the reinstatement and modification of past experience are carried on under guidance from another mind. Originative Imagination consists in finding particulars consonant with our idea of the unity that we are constructing; the measure of success attained lies in the fitness of the images to form part of that whole—lies, that is to say, in their relevance to our purpose. The creation of an Ariel or a Caliban involves a general conception of the character to be portrayed and the selection of attributes and incidents befitting this conception. The idea of the delicate Ariel was the cue for the reinstatement from past experience of images of the blossom that hangs on the bough, of the bee in the cowslip bell, and of the contrasting images of the ooze of the salt deep and the sharp wind of the north, and led to a modification and combination of them which reinforce the main conception. Thus the whole process is one of Origination, including both Imagination and Ideation; but with the latter element we are not now concerned.

We have now completed our survey of Imagination, having considered (1) the theory that images arise in the course of the process of adaptation to an environment, on the whole, uniform, but liable to variation; (2) the theory of Reintegration, known as the principle of Association, according to which a particular past experience tends to be reinstated upon the recurrence in consciousness, of any component of that particular experience; and (3) the different kinds of Imagination due to (a) the absence or presence of modification of the revived experiences, and (b) the purpose for which experiences are revived.

The characteristics which distinguish images from percepts may now be considered. A percept, as we have

said, differs from an image in involving the action of a physical stimulus, and all the psychical differences between the two mental products are due ultimately to this fact. It is not always a perfectly easy matter to determine whether a certain content of consciousness be image or percept. When a man makes a mistake, and believes he has a percept when he has only an image—that is, when he erroneously supposes his sense-organs to be engaged—we say he has an hallucination. An hallucination is an image that has, somehow, acquired the marks of a percept. It is sometimes said that children have real difficulty in distinguishing between percept and image, but perhaps such statements are based upon a misinterpretation of their behaviour. Yet it is true that there is no one criterion by which it can be determined in all cases whether a given mental product be image or percept. The main difference lies, perhaps, in the fact that the percept comes to us in a context of like nature with itself. We found it to be a group of members of one or more sensory-series, all such series forming part of a continuum. This is not so with the image; it forms no part of a continuum of images—at most it is but one of a train. Compared with the percept it is fragmentary; it occurs “in relative isolation and detachment.” It has, further, less fixity than the percept, for the latter consists of sense-impressions, dependent upon the continued action of a physical stimulus, whereas the duration of the image is determined solely by the ever-varying state of our attention. This is connected with a difference in their mode of entrance into consciousness. The entrance of a percept is, as a rule, abrupt compared with that of an image, for the percept is due to an “eruptive happening” from without, whereas the image is due to a change in consciousness initiated from within. Another difference lies in the fact that the percept depends upon movement—our field of view, for instance, changes as we move or as we open and close our eyes—whereas an image is independent of our bodily movements. Lastly, the percept is, as a rule, more definite than the image. The power of making clear and definite images, no doubt, varies much with individuals, and the same person may have definite images of one kind—*e.g.* visual images—and only blurred and confused images

of another kind—*e.g.* auditory images. Still, speaking generally, our percepts are more definite—that is, more clear in outline, and more full of detail—than are our images.

As a rule, these characteristics enable us to distinguish unhesitatingly our images from our percepts, but there are some interesting mental products which seem to be intermediate forms. Such are (1) the primary memory-image, and (2) the recurrent percept. It is by means of a “primary memory-image” that we can count the strokes when the clock has ceased striking, and become suddenly aware that the gong has sounded some moments after the sound has ceased, and that children sometimes are able to answer a question to which they have obviously not attended. No doubt in these cases, when the image arises, the sense-organ is still functioning, though not immediately affected by the physical stimulus, which has ceased to act. The student who works long with his microscope has, sometimes, “recurrent percepts” of the objects he has been observing, hours after he has ceased to work; and those who have made a long journey by boat or train have, sometimes, an analogous experience in the recurrence of the sense-impressions due originally to motion.

We may now refer once more to those *presentative-representative* complexes which we mentioned at the beginning of this chapter as being commonly called Percepts. The student should analyse some instances of such complex mental products; he might, for example, enumerate all the factors involved in his preception of an umbrella, seen folded in a stand, or of a book in its place on a shelf. He will distinguish in such cases what we may call a perceptual core, consisting of the actual sense-impressions of the moment, and an “aura” of vaguely reinstated sense-experiences which recur by reason of their previous connection (in sensory series) with sense-impressions like those which at the present moment he is receiving. The whole complex, then, is produced by a process (involving reinstatement upon a cue) which resembles that we have analysed as underlying the principle of Association, but which differs from it, inasmuch as in a “percept” of the complex nature under consideration the

past experiences are not definitely reinstated as such, and in that the whole process is an immediate one, involving nothing that may be called a "train" of images. "It is an all-pervading fact of mental life that past experience works in a way which may be called *implicit*. Without being itself recalled in distinct detail, it invests the details which actually are presented at the moment with a certain relational significance, a sense of their meanings and bearings."<sup>1</sup> Our method has been to study first explicit reinstatement of determinate images, though in actual experience the implicit precedes the explicit; "the actual flow of mental life at all stages of development involves transition from implicit to relatively explicit reinstatement of past experience."

## REFERENCES

- Stout : *Manual*, Book IV., Chaps. I.-III.  
*Groundwork*, Chaps. X., XI.  
James : *Textbook*, Chaps. XX., XIX., XVIII., XVI., or  
*Principles*, Vol. I. Chap. XIV.  
Vol. II., Chap. XVIII.  
Ward : *Ency. Brit.*, Vol. XX., pp. 57-60.  
Vol. XXXII., pp. 58-60

<sup>1</sup> Stout, *Groundwork*, p. 67.



## CHAPTER VI

### COGNITION : (4) IDEATION

So far, in treating of forms of Cognition, both presentative and representative, we have dealt only with experiences which we have regarded as unique, each one by itself, or *particular*. In this sense, every experience that we have is particular ; but our particular experiences involve factors that are "general," inasmuch as they may be regarded as aspects of an indefinite number of actual or possible particular experiences. We have now to consider those mental products—that is, those psychical objects—which involve, in this sense, a *general* form of Cognition. We call particular cognitive experiences involving "general" factors, Ideas, and the process of arriving at ideas, of combining and manipulating them, we call Ideation, or Intellection, or Thought.

There is considerable diversity among psychologists in their use of the term "idea" and the related terms. Locke used Idea as synonymous with Presentation in its widest sense ; for him, it covered the whole of the mind's content, presentative and representative. Hume limited its application to the representative contents of consciousness, including under it images as well as those forms of cognition we have now to consider. Modern psychologists usually apply the term to those mental objects only which involve some general factor. Idea, then, in this sense means "general idea" or "concept," and it is the sense in which we are using the term in this chapter, though at times it is convenient to apply the word more widely so as to include images, and even percepts and sensations. The student must, therefore, be careful in every case to determine from the context the application of the term.



The questions for us to consider are (1) the mode of origin of ideas (in the narrow sense), (a) in the first instance, (b) when we have already acquired some ideas ; and (2) the relation of Language to Ideation.

Ideas arise as the result of analysing and comparing particular experiences which confront one another. The experiences confronted may both be perceptual, or one may be presentative and the other representative ; that is to say, both experiences may involve the cognition of objects actually presented to the senses, or one may involve the cognition of an object present in imagination only. The essential condition in order for an idea to arise is that the two objects should be presented to consciousness together ; this is what is meant by saying that they must confront one another. Such *confronting* is, of course, due in the first instance not merely to mental activity, but to the arrangement of the material universe in which we find ourselves—that is, to our environment.

Let us analyse two particular experiences of a baby—say, the recognition of his nurse and of his mother. The baby recognizes his nurse : this means that certain sense-impressions (let us say the visual impressions due to a white dress) have become so familiar to the child that when he sees that white object he expects other sensory experiences to follow, such as the hearing of a voice with a familiar intonation, the “feel” of being lifted and moved through space, the contact of part of his body with warm hands, and of other parts with material of a certain texture. Such a series of sense-impressions has acquired “meaning” to the extent that when any one of them—*e.g.* the sensation “white”—occurs, the other members of the series tend to be anticipated ; but the child, of course, apprehends the whole series, as yet, only as an unanalysed whole. Each time this complex—which we call “Nurse,” and some of the elements of which we have enumerated—is presented to the child he may be said to recognize it, inasmuch as he discriminates it from the whole continuum of his sensory-experience ; but it is discriminated merely as a whole, not as the whole composed of the factors which we know make it up, and which, later, the child will learn to distinguish. [The student must be careful to distinguish between his own knowledge of “Nurse”

and the knowledge of the child whose consciousness we are now studying.]

Now, let us suppose that the child, after having had "Nurse" presented in this fashion, has an experience of a similar complex, made up of the visual, auditory, tactual and muscular impressions, due to the presentation of the object "Mother." This series is very like the series due to the presentation of the object Nurse, and in the earlier stages of its conscious life the child, as we judge from its response to these two wholes, fails to discriminate between them. Later comes the discrimination which results in the recognition of the two series as wholes, different from one another; but still the process involves no other form of cognition but those properly called "particular," and no mental process other than those we have discussed in the chapter on Perception—namely, Assimilation and Differentiation. To all normal human beings comes the advance we are now considering, the apprehension of a general aspect in particular experiences, which, as discriminated wholes, confront one another. Let us suppose that the child's attention has been drawn to the "white," a part of the complex, Nurse, but that, as yet, *white* is not discriminated from the rest of the complex; and let us suppose, further, that immediately afterwards the complex, Mother, is presented to the child. He may then notice for the first time that aspect in which the two complexes differ—namely, the presence of *white* in one of them only, which means the absence of *white* in the other. This is clearly a process of analysis; the child apprehends one complex object as "white," and another as "not white." And this analysis has, clearly, taken place through the confronting of the two objects; it may have been that the child was implicitly anticipating the series Nurse and actually got the series Mother. Such an experience—a "disconcerted pre-perception"—would be favourable to the process of analysis involving the apprehension of an aspect in which the two discriminated series differ. As so described the process might be considered as one of Differentiation merely; but it really involves more than this, for the child has discriminated an aspect of an object, "white," which he will now notice in other objects—in his own dress, his toy bear, his ball, and so on. These objects

are different to him now from what they were before ; the sensory-motor series they involve remain what they were, but the child now not only has a percept of each object—he, further, apprehends each object as “white,” the name we have given to a general aspect of these particular experiences of the child. The child has now an idea “white,” which determines his subsequent particular experiences of white objects. The student must not, however, suppose for one moment that the child has a mental product or psychical object—the idea of “white”—which has existence apart from the presentation or representation of any particular white object. This is not so ; it is useless to search in our minds for “general ideas” in any such sense. We have an idea when we apprehend a particular object in a certain way ; our particular experiences are, as it were, determined or moulded by the ideas which are the results of analysis. Having detected an aspect in a particular object, we look for that same aspect in other objects.

It thus appears that ideas arise in the course of our perceptual experiences. The material of these experiences, as we saw in Chapter IV., is afforded by (1) our sensory-motor impressions, and (2) our knowledge of ourself, and it is largely from the analysis of perceptual experiences involving “self” as a factor that we gain our earliest ideas.

The child, at an early stage, detects such general aspects as “hot,” “cold,” “soft,” “nice,” “nasty.” He is not, however, left to himself to make what analyses he can of his experiences and to apply the results to succeeding experiences as best he may. The results of the analytic activity of our forefathers are preserved for us in Language. From his earliest days the child is having his attention directed to this and to that aspect of the objects around him. The grown-up people who thus direct him have general ideas ; they know that the particular object attended to resembles in one or more aspects an indefinite number of other objects. This is recognized by calling such objects by the same name—that is to say, by producing, when in presence of such objects, the same series of muscular and auditory sensations. We can, when we choose, initiate such a motor-auditory series, and it is the power that we have of producing words—that is to say, of producing sensory-



series of a particular kind—at will that gives to us a hold over our ideas. When we utter or hear a word, those experiences that we have previously had along with that particular series of sense-impressions tend, according to the Law of Association, to be reinstated, and those chiefly tend to be reinstated which have the closest connection with the present contents of consciousness. Hence, when we say the word "chair," not all the discriminated aspects of the objects which we call chairs come before our minds—that is to say, not the whole meaning of the word is present to our minds as we utter it—but only the one or more discriminated aspects which are relevant to our immediate purpose. For instance, if we say to a guest, "Will you take this chair?" the percept of the chair in question is accompanied by the apprehension of that particular object as a suitable seat for a particular person. We have in consciousness (1) the percept of the chair, (2) the sensations involved in saying the word "chair," (3) an idea of the object perceived and named as suitable for a particular purpose; but (3), the idea, does not exist apart from (1), the percept, and from (2), the utterance of the word. If the object is not perceived, but is merely imagined, the case is not otherwise. We may say, "I am going to buy a new chair for my room." As we utter the word "chair" we have in consciousness (1) a sensory-motor series constituting the word, (2) a vague image of a chair, (3) an idea of a chair as a piece of furniture we need in our room; but (3) has no psychological existence apart from (1) and (2). In cases like these, the object which forms a part of the mind's content is a complex consisting of (1) sensory-motor impressions, if the name be heard, uttered, or seen, or such experiences reinstated, if the name be merely "imagined"; and (2) a percept or image which receives its determination from the particular aspect or aspects of the object presented to consciousness then being apprehended—that is, present in "idea."

The form and the determinateness of the imagery involved in the apprehension of general aspects of objects no doubt vary largely with the individual and with the nature of the aspects apprehended. The images in some people's minds are clearly defined and full of detail; in others they are blurred and vague, or are mere diagram-

matic outlines ; but such differences are no criterion of the individual's power of forming general ideas. It may well be that the person whose mind is full of definite, detailed images has less power of apprehending those aspects of the objects presented which are relevant to his immediate purpose and which constitute the idea he needs, than has the person whose imagery is vague, schematic, or even non-existent. It is recorded that when Dr. Sidgwick had in his mind the conception of value as used in Political Economy, there accompanied the word "an odd symbolic image . . . a faint partial image of a man putting something in a scale." It is obvious that such an image can be of no real assistance to thought, and that a clear detailed image might very well be a hindrance by suggesting what is irrelevant. Further, Dr. Sidgwick noticed that, when thinking on logical and philosophical subjects, he used no imagery other than of words.

It is important to realize clearly the distinction between (1) the idea, (2) the image, (3) the sensory-motor impressions (actual or reproduced) constituting a word, which may go to form a psychical complex.\* It is the idea which determines the image, and it is the word which gives us a subjective hold of the idea. The student may find some help in realizing the distinction between image and idea by noting the difference between an ordinary visual image, rarely, if ever, undetermined by ideas, and an auditory image, which to the non-musical is not so determined. It may be noted that we have a great number of words which apply to visual objects, and very few which apply to auditory objects, words being records of ideas and not of images.

We have now to consider how we arrive at new ideas which others have already attained to and have expressed in words. In all such cases we work upon a cue supplied by a name. The whole of the "thinking" of most of us, and the bulk of the thinking of all of us, consists in *understanding* the words of others. Take, for instance, the process by which a person who has never seen a glacier may be led to understand what is meant by that name—may get, that is to say, an idea of a glacier. It is obvious that the name alone will do nothing for him ; it is for him a mere series of auditory or visual or motor-impressions,



without significance. If we suppose him to have, however, ideas of ice and snow, rocks and stones, we can by a right use of words make him combine and modify these ideas so that, as a result, he gets in his mind an object standing in certain definite relations to other objects; that is to say, he apprehends certain aspects of the new object—he has some idea of what is meant by “glacier.” This form of Thought or Ideation—which we call “Understanding”—has helped him to frame some kind of image out of his images of ice, rock, etc., by the process we have described as Interpretative Imagination, and this image of his may be made more accurate and full by means of pictures and photographs; but, it must be noted, it is the idea which helped him to make the image, not *vice versâ*. If later he sees and traverses glaciers, his apprehension of them is determined by the idea of “glacier” he has already in consciousness. For instance, he may look for the morasses and pot-holes and so on, the marked features of his idea; the ordinary traveller rarely sees anything beyond what he has been prepared to see. Therefore the whole process that we have analysed consists of (1) hearing the name of an unknown object; (2) apprehending certain features of the object described in words, a process that is possible since ideas corresponding to these words are already in consciousness; (3) applying this conception to actual experiences when the objects are presented.

The process of Ideation in this sense of Understanding is the same whether the object thought of be a material thing, such as chair or glacier, or a person, myself or another, or an attribute or aspect of a person or thing, such as “beauty” or “character” or “nature.” To take an example, a child hears “character” spoken of: “William Rufus had a bad character,” “Character is more important than good looks,” and so on. He implicitly believes that there is something to which the label “character” can properly be attached, but as yet he does not know the object, and therefore the meaning of the word is not conveyed to him. (An exceptional child may possibly in his self-confidence and inexperience question, or even deny to himself, the existence of any such object; but the tendency of children is to believe in the existence of an object of which they hear and to attach some meaning to

the name from their scanty stock of ideas.) As he grows older and his experience of things and persons widens, the child acquires ideas which correspond to the various aspects of "character," and he further observes instances in which the word is used, and notices their common features. Just as the child could only get an idea of glacier if he already had ideas of ice and stone, so he can get an idea of character only if he already has ideas of persons, with virtues and vices. It is the word in both cases that leads him to observe and analyse, and hence to form a new idea.

For the ordinary practical purposes of life the aspects of objects that concern us are comparatively few and obvious, and are clearly labelled by the words that our predecessors have applied to them. When we think, it is generally because we have some practical end to serve, and ordinarily we do not go far astray, or, if we do, we soon find out our error, perhaps from painful experience of the results of our misconceptions. The clear thinker is he who has in his mind together those aspects of an object which are required to enable him to reach the end for which he is thinking, and who excludes all others as irrelevant. The abortive thinker fails to apprehend the object in the aspects appropriate to his purpose, and therefore fails to reach his end, and the confused thinker is led astray by the apprehension of irrelevant aspects of the object in question. Thus the end for the attainment of which we set ourselves to think serves to guide and check us. This end, as we have said, is usually one connected with our practical life, and one whose attainment would promote our welfare; but men who have reached an advanced stage in civilization think sometimes for no other purpose than that of arriving at truth—that is, of seeking an explanation of the facts of experience. The thinking for this purpose, the results of which are contained in our Sciences and our Systems of Philosophy, does not differ in kind from the thinking for practical purposes, which we have already analysed; but it has to be more careful, more thorough, more systematic. Every single object that can be thought of has innumerable relations with other objects, and each such relation is an aspect of the object, the apprehension of which would

constitute an idea ; but, as we have said, for everyday practical purposes we need have in mind only a few obvious aspects of the things we deal with. The man who works a pulley need only grasp the relation between cord and wheel so far as to know in what direction and with what force to pull the cord. But in the systematic thinking that leads to conceptions which afford an explanation of facts, it may be required of us to hold in our minds together numerous aspects of an object, and what are for practical purposes insignificant aspects, and possibly, even, aspects which have not as yet received a label. Hence the necessity for rigid definition in science and mathematics and philosophy ; the mathematician must have a different conception of a pulley from that of the labourer. Still, whether our purpose in thinking be a practical one or whether it be the attainment of knowledge for its own sake, in so far as it consists in interpreting the words of others, the process is one of applying conceptions already attained to the elucidation of our particular experiences. It is in this way that we appropriate the results of other people's labours, and make their ideas our own. Only when we do this do we fully "understand."

The scientific discoverer and the original philosophic thinker do, of course, more than this. They arrive at "ideas" with which no one has presented them, and which have not a label. Our work in "understanding" is but that of pursuing a path already made ; theirs is that of the pioneer making his way through a virgin forest. Original thinkers find the conceptions of others which they "understand" to be inadequate to the fulness of their experiences, and they hit upon a new and more appropriate conception, which fits the facts and to which they give a name. Their method of reaching the new idea is but that the baby followed in getting his first idea : experiences confront one another, and are found to conflict ; analysis is carried further, and the aspect now discriminated constitutes the new conception. The difference lies merely in the nature of the experiences analysed ; the baby discovers "white," and Newton discovers "gravitation."

It thus appears that Ideation is not a process merely of analysis ; the analysis implies a synthesis. "White" and



“gravitation” are both conceptions that bind together an indefinite number of objects. Thus, thinking is correctly described as an analytico-synthetic process. The more general the idea, the larger the number of possible experiences to which it applies.

The ideas that each one of us possesses constitute a nexus of thought—*i.e.* a conceptual system more or less coherent—and any new idea we acquire involves an alteration in the system, either an addition to it or a modification of it. We are prepared to accept any idea which easily fits itself into our system, and to reject any that conflicts with it. Our test of the value of an idea is its “fitness” for a place in our whole system of ideas. We fail to “understand” ideas for which there is no place in our existing system of ideas, and we tend indignantly to reject ideas which not only do not fit into our conceptual system, but which, if we accepted them, would compel us to modify parts of our system which we have long cherished. Thus it is our existing stock of ideas which determines what new ideas we shall reach, either by “understanding” (Interpretative Ideation) or by “discovery” (Originative Ideation). These new ideas we reach by deliberately looking for them; we seek experiences of objects which have the particular relation or aspect of which we have heard the name, or of which we have already formed some vague conception, and by the analysis and comparison of the instances we find, our apprehension of the objects becomes more determinate. The new relation is clearly conceived. We have already said that experiences confront one another in the baby’s consciousness because the world is what it is, “uniformity flecked by diversity.” Later, when we think of set purpose, and as we seek experiences which contain the general aspects we have already noticed—that is, the uniformities—in the process of search and comparison, we come across diversities which, in their turn, we learn to grasp as general aspects of a wider class of objects—that is, as uniformities.

The process of Ideation—namely, the analysis and comparison of particular experiences—could not be carried far without the help of language. Ideation must precede the use of words, but inasmuch as words, in accordance with the principle of Association, enable us to reinstate





## CHAPTER VII

### ACTIVITY OR ATTENTION

HAVING now completed our examination of consciousness in its cognitive aspect, we turn to the other factors invariably found with Cognition—namely, Affection or Feeling and Activity or Attention. We will deal with the latter first, because we have in our treatment of Cognition found it impossible to ignore it, whereas we have so far avoided direct reference to Feeling. Since we left the subject of Sensation, we have been referring to “cognitive activity” as involved in many different processes, and in the last chapter we found ourselves concerned with products far removed from the mere sensory material with which Cognition began. We have found it convenient to speak of sensations, percepts, images, and ideas as mental *products*—that is, as psychical objects present in an individual consciousness. From one point of view this is what they are, but, from another, they “are” not at all; that is to say, they are not objects, in the sense of having a permanent existence. “A permanently existing ‘Idea’ which makes its appearance before the footlights of consciousness at periodical intervals is as mythological an entity as the Jack of Spades.”<sup>1</sup> Having accomplished the purpose for which we made these abstractions, we will cease for the present to speak of the psychical products as objects, and will now regard consciousness as *process*—that is, as a continuous activity. It is from our experience of ourselves that we have gained the concept “activity”; consciousness is that which is “active.” The most convenient name for the activity of mind is Attention. Attention, it has been said, is the one faculty of mind.

The student will see at once that we can frame no formal

<sup>1</sup> James, *Textbook*, p. 157.

definition of Attention, inasmuch as it is an ultimate factor of consciousness, and it will be remembered that we have already described it (in Chapter II.) as that relation between subject and object whereby the object suffers alteration. It must be borne in mind that the object in this relation is that continuum of presentations which began with the "big, blooming, buzzing Confusion" (the "*primum cognitum*") which constitutes the baby's universe, and which has, from that beginning, been progressively differentiated.<sup>1</sup> Activity is the means whereby such alteration has been wrought in the "*totum objectivum*." Inseparably connected with the *active* relation in consciousness is the *cognitive* relation; the two together form in fact one process, cognitive activity. It cannot be too often recalled by the student that we are, in fact, abstracting when we consider them apart. It is in actual experience as impossible to separate Activity and Cognition—that is, the presentation of the object to the subject and the attention of the subject to the object—as it would be to separate body into form and substance. "Cognition gives the process its determinate character; without conation (*i.e.* activity) there would be no process at all to have a character."<sup>2</sup>

Attention is, then, the process of getting and altering sensations, percepts, images, and ideas. The work of attention is done on the mind-content, but, in our actual experiences, we consider it as directed to that which is external to the mind. When we speak, then, of Attention as acting on presentations, we are in no wise referring to any immediate process of introspection, but only to a process of which the psychologist, by means of introspection, has been able to frame a conception. All introspection involves activity, but our activity is usually directed elsewhere than on our own mental processes.

From what we have said of the development of the presentation-continuum, it will be seen that the work of mental activity is selection and emphasis. Attention may be called Selective Activity. Inasmuch as Selection implies the ignoring of that which might have been selected, we may say that our cosmos has been built

<sup>1</sup> See page 28.

<sup>2</sup> Stout, *Manual*, p. 599.

up by (1) a process of ignoring, and (2) a process of emphasizing in indefinitely varying degrees that which has been selected. This aspect of Attention as selective and emphasizing activity is sometimes expressed in metaphorical terms borrowed from optics. All that is presented to the mind at one time is regarded as constituting the "field of consciousness," and within the field there can be distinguished a "focal" region and a "marginal" region. If the student examines his present field of consciousness, he will find that some parts of the field stand out more clearly than others; they are emphasized over the rest of the field, they are in the "focus," while everything else in the field is in the "margin." Attention, as we are now using the term, stands for the activity which is implied by there being a "field of consciousness" at all; all that is in the field, whether in focus or margin, is there by virtue of Attention. But the term is used, by some psychologists, with a narrower meaning—namely, as the activity of emphasizing or focussing a part of a field of consciousness. The view we take is that this activity is one with the activity which made the field itself. There is but one "faculty" of mind.

Now let us apply this conception of Activity as a process of selection and emphasis to the theory of the Progressive Differentiation of a Presentation-continuum.

(1) Sensations we have regarded as our ultimate data; still, there is a sense in which Sensation is selection, though the selection appears to be, at first sight, the work of circumstance—environment and physical constitution—rather than of consciousness. Nevertheless, Activity is at work on this level; it is Attention which determines what is brought into each mind. The fulness and richness of the sensory-contents of an individual mind depends from the beginning upon the mental energy which makes selection from possible material.

(2) Throughout our treatment of Perception we were using the concept of selection. We spoke of Perception, in its primary form, as a synthesizing of sense-impressions *selected* from different series; in a more complex form, as a synthesis of such a group of selected sense-impressions with another group, *selected* from past experiences, implicitly reinstated.



(3) We found Images to arise as the result of emphasizing a part of our perceptual experience over others, and the formation of trains of images to be a process of selecting, under different circumstances and for different purposes, some of our past experiences to be explicitly reinstated and modified by the further selection and emphasis of some of those reinstated experiences.

(4) Ideation we found to be pre-eminently a selective process, consisting of the isolation and emphasis of aspects of our particular experiences, and the formation of trains of ideas we found to consist in the selection of ideas suitable for our immediate purpose.

As we now look back, then, upon sensations, percepts, images, and ideas, we see them as but different modes of Activity or Attention. When we were dealing with them under the concept of Cognition, we regarded them from a static point of view; when we apply the concept of Activity, we are regarding them in a dynamic aspect.

Attention, then, is the exercise of conscious activity in the forms of selection and emphasis, whereby the world of each of us has been, and is being, constituted. This conception is eloquently expressed by Professor James<sup>1</sup>: "The mind is at every stage a theatre of simultaneous possibilities. Consciousness consists in the comparison of these with each other, the selection of some and the suppression of the rest by the reinforcing and inhibiting agency of attention. The highest and most elaborated mental products are filtered from the data chosen by the faculty next beneath out of the mass offered by the faculty below that, which mass in turn was sifted from a still larger amount of yet simpler material, and so on. The mind, in short, works on the data it receives very much as a sculptor works on his block of stone. In a sense the statue stood there from eternity. But there were a thousand different ones beside it, and the sculptor alone is to thank for having extricated this one from the rest. Just so, the world of each of us, howsoever different our several views of it may be, all lay embedded in the primordial chaos of sensations, which gave the mere *matter* to the thought of all of us indifferently. We may, if we like, by our reasonings

<sup>1</sup> *Principles*, Vol. I., pp. 288-289.

unwind things back to that black and jointless continuity of space and moving clouds of swarming atoms which science calls the only real world. But all the while the world *we* feel and live in will be that which our ancestors and we, by slowly cumulative strokes of choice, have extricated out of this, like sculptors, by simply rejecting certain portions of the given stuff! Other minds, other worlds, from the same monotonous and inexpressive chaos! My world is but one in a million alike embedded, alike real to those who may abstract them. How different must be the worlds in the consciousness of ant, cuttle-fish, or crab!"

Having now reached a clearer conception of the meaning of Activity, we may consider what is meant by degrees of Attention. For this purpose we will refer once more to the metaphor of focus and margin. By Introspection we may discern states of "dispersed attention," in which there seems to be very little, if any, differentiation between focus and margin—states in which the content of our consciousness approximates to the "big, buzzing Confusion" which we saw formed our object in its first stage. "The eyes are fixed on vacancy, the sounds of the world melt into confused unity, the attention is dispersed so that the whole body is felt, as it were, at once, and the foreground of consciousness is filled, if by anything, by a sort of solemn sense of surrender to the empty passing of time."<sup>1</sup> Such an experience we get sometimes as we fall asleep or recover consciousness after fainting. These are cases where our activity is, for the time being, at a low ebb. As a rule, the intensification of the focal region, at the expense of the margin, is in proportion to the degree of activity being exercised. The classic instance of this is the effect of the extreme concentration of the activity of the soldier in action. It is said that this may be so great that a man may receive a mortal wound without being aware of it. In a case like this there is practically no margin of consciousness; all is focus. But, as a rule, concentration of activity is not so complete as this; while we are at work upon a part of the field—say, a mathematical problem or a psychological theory—which thereby becomes the focal region, we remain susceptible to changes in the margin,

<sup>1</sup> James, *Textbook*, p. 218.

such as those due to a flickering light or a headache. Moreover, any change in marginal consciousness tends to divert activity to itself, so that the object passes from the margin to the focus. When a person is able to ignore such marginal changes we say he has a high degree of the power of concentration. Children are very susceptible to these changes; hence the constant changes of focus, or, as we say, the flitting of their attention from one topic to another. As we build up our world, by the construction of a conceptual system—that is, as our percepts and images become more determinate through ideas—we grow progressively able to resist demands on our attention from what is irrelevant to our immediate purpose. The child has not yet learnt the meaning of relevance—that is, the “worth” of objects as ordinarily estimated by men; as it has been put, he seems to belong less to himself than to any object which catches his attention. It is only through experience that we learn to “possess our souls.”

We may now ask what are the means whereby we make the differentiation between the focal and the marginal region of a field of consciousness. As far as attention to sensory-objects is concerned—that is, in so far as Activity takes the form of Sensation and Perception—we attend by adjusting our sense-organs to the physical stimulus, and this we do by setting up muscular accommodation. This takes two forms: (1) preventing—inhibiting—movements that would interfere with the perceptual process; and (2) initiating movements which facilitate the perceptual process. For example, if we wish to catch a faint sound, we stand still and turn our heads in the direction from which we think the sound comes. People sometimes close their eyes in order to hear a telephonic message or to inhale a scent. But attention to an object usually involves more than mere muscular adjustment. In concentrating attention upon an object we bring images, made determinate by ideas, to our aid; a presentation tends to hold the focus of consciousness in so far as it is accompanied by images and ideas previously connected with it. We can observe best those objects about which we have the clearest ideas. The student who has done any work with the microscope will be able to verify this statement from his own experience, and it is a matter of common observation



that those who have most idea of what flowers are likely to be there, are those who best *see* the flowers in a hedgerow. The explanation given by Professor James is that we reinforce the percept of an object by making an imaginary duplicate in the mind of what is really there to be perceived. "Pre-perception is a full half of perception," in the sense that the more or less explicit reinstatement of past experience is essential to clear and accurate observation.

The fact that we perceive in so far as we make preparation to perceive, accounts for the close resemblance that there is between the worlds we all construct. Other people, from the beginning, tell us what to look for. They speak of objects of which we have as yet no experience. Under their guidance we frame an image and look for an object, whose imaginary duplicate is in our minds. As we have said, it is language which makes this possible. "In short, the only things which we commonly see are those which we pre-perceive, and the only things which we pre-perceive are those which have been labelled for us and the labels stamped into our mind. If we lost our stock of labels we should be intellectually lost in the midst of the world."<sup>1</sup>

Psychologists have been accustomed to discuss different kinds of Attention, but it will be clear to the student that, strictly speaking, there are no varieties in *kind* of Attention; Attention is but one. The distinctions which have been drawn are due to differences in that which is behind particular acts of Attention—that is, in the motives of Attention. Attention may or may not be preceded by an explicit act of will, and it has been divided accordingly into Voluntary and Non-voluntary Attention. This, however, is a distinction that can be grasped only after we have made an analysis of Volition. We have in this chapter considered (1) the meaning of Attention, (2) degrees of Attention, (3) means of Attention.

#### REFERENCES

James : *Textbook*, Chaps. XIII., XV.

*Principles*, Vol. I., Chaps. XI., XIII.

Ward : *Ency. Brit.*, Vol. XX., pp. 42, 45.

<sup>1</sup> *Op. cit.*, p. 236.



## CHAPTER VIII

### FEELING OR AFFECTION

WE have now to consider the third ultimate factor of consciousness—namely, Feeling, in the wide sense of the term, or Affection. The student must be on his guard against confusing this technical use of the term Feeling with any of the various meanings that the word has in ordinary usage. In Psychology we use it in the singular only; there is but one ultimate factor of consciousness conditioned by the action of the object on the subject. It may be admitted that Feeling is not a good name for this aspect of mind, but objections similar to those that can be brought against it can also be raised against the other terms—Affection, Passivity, Passion—which have been suggested, and these have not traditional authority behind them. They have, however, the advantage of suggesting the idea of a state produced by the action of an object which the term Feeling does not; but the student will perceive that they are all alike open to objection on the score of ambiguity.

It may be helpful to distinguish some of the meanings in which we do *not* use the term Feeling in this book. We do not use it for the cognitive processes connected with the sense of Touch, for vague organic sensation or for pain-sensation—that is, we are not using it in the sense in which we say, “This cloth feels rough,” or “I feel in my pocket,” or “I feel hungry,” or “I feel a pain.” The term is used in these cases to denote forms of cognitive activity; these are accompanied, as is all Cognition, by Feeling understood in the technical sense. Neither do we use the word to denote an emotional state, in the sense of “feeling” angry or grateful. The statements, “I feel angry, grateful,” etc., refer to whole states of consciousness, psychoses, which we call Emotions, and with which

we shall deal in the next chapter. Emotions are not to be confused with Feeling in the technical sense.

Feeling, then, is neither a presentation nor a psychosis ; it is, like the other two factors of consciousness that we have already considered, an abstraction. It is an element of consciousness present in every state and inseparable from Cognition and Attention, but distinguishable from them by thought. The word "feeling," unlike the words "knowing" and "doing," is intransitive in meaning. I know something, I do something, but feel somehow. In dealing with Feeling, then, we are concerned directly with the subject only. Feeling is a subjective state, caused by objects being known and attended to ; that is to say, Feeling or Affection is the accompaniment of cognitive activity.

We have already<sup>1</sup> distinguished two aspects or stages of Affection—namely, Feeling proper (Pleasure-Pain) and Conation (Appetition-Aversion). We consider Appetition as the inevitable sequel of Pleasure ; Aversion as the inevitable sequel of Pain. Our main task, therefore, is to consider the nature and the conditions of the feeling-attitude (Pleasure or Pain) of the subject when in presence of an object.

There is little that can be said about Feeling in itself ; it is ultimate and unanalysable. By introspection we can, indeed, discover that it takes two forms—Pleasure and Pain—and that Pleasure and Pain vary in intensity and duration ; but what is of most interest to the psychologist is the relation of Feeling to Cognition on the one hand and to Activity on the other, or, what is saying the same thing, the relation of Feeling to cognitive activity. Though we have referred to two forms of Feeling, it must be borne in mind that Feeling, like Activity, is one. There are not two feelings, Pleasure and Pain, but merely two *modes* or *variations* of Feeling, for which term, in the narrow sense, the term Pleasure-Pain might with advantage be substituted. There are, however, ambiguities in these words analogous to the ambiguity in the term Feeling itself. In Psychology the words are not used for objects of cognition or for psychoses ; they can never be used in the plural.

<sup>1</sup> See Chapter II.

We have now to examine the relation between Pleasure-Pain and (1) Presentations, (2) Attention. This we know can be done only by the aid of introspection. Our method must be to analyse many widely different concrete experiences of our own involving the various forms of Cognition,—sensations, percepts, images, ideas—to concentrate our attention upon the feeling-attitude in each instance, and to seek the characteristics common to those presentations which are accompanied by Pleasure and common to those which are accompanied by Pain. By this method of procedure it is possible to arrive at a theory concerning the feeling-tone or hedonic aspect of Presentations. Then we may review those same concrete experiences from another standpoint—that of the last chapter. We may regard them as modes of conscious activity, and proceed to ask what characterizes conscious activity when it is accompanied by Pleasure, and what characterizes it when its concomitant is Pain. In this way we can arrive at some conclusion concerning the relation of Feeling to Attention. If the results so obtained tally with the results obtained by an investigation into the relation of Feeling to Cognition, we may with confidence advance them as embodying a theory of Pleasure-Pain. Here we can only indicate some of the results obtained by pursuing these methods of introspective analysis.

Let us take first Presentations on the level of Sensation, and inquire what characterizes pleasurable and painful sense-impressions respectively. Their feeling-tone must be determined by (1) their quality, or (2) their intensity, or (3) the time-conditions of their occurrence—namely, their duration and frequency. We are now allowing ourselves to speak as though sense-impressions were discrete things. We know as a matter of fact that they occur only as modifications of a sensory-continuum, and Feeling seems to be intimately connected with that vague “general sensation” constituted by such a continuum. Still, by treating sensations in this abstract way we are enabled to get clear conceptions which help us to understand the actual facts. It is analogous to the method of treating a circle as made up of an infinite number of straight lines, which mathematicians find convenient for their own purposes.



Psychologists have found by introspection that variations in Intensity are the main factor in determining the feeling-tone of sensations; indeed, the theory has been put forward as a working hypothesis that sensations of every kind, at a certain stage of intensity, are pleasurable. The theory is that sensations of a moderate degree of intensity have a pleasant feeling-tone; that this pleasant feeling-tone increases as the intensity of the sensation increases until a maximum of pleasure is reached; then, if the intensity of the sensation continues to increase, pleasure passes over into pain, and the painful feeling-tone increases with the increasing intensity of the sensation up to no assignable limit. The student is advised to test this statement by applying it to some sense-experience he can easily and vividly recall—let it be, for instance, a sound gradually increasing in intensity. In such a case we get a series of gradual changes, and we may set forth some of the stages in the series as follows :

1. A barely discriminated sensation with practically no feeling-tone.

2. A sensation, slightly increased in intensity with a pleasant feeling-tone. (The hedonic aspect of a sensation of the lowest possible degree of intensity has been called the Threshold of Feeling, and according to our theory the feeling is Pleasure.)

3. Sensations of increasing intensity, accompanied by a gradually increasing pleasurable tone, until a maximum of pleasure is reached.

4. Sensations of increasing intensity, accompanied by a gradually decreasing pleasurable tone.

5. A sensation of still greater intensity, with a painful feeling-tone. (The Threshold of Pain.)

6. Sensations of increasing intensity, accompanied by an increase of pain, until the situation becomes unendurable even in thought. When we hear Sarah Bernhardt's moan become a shriek, pleasure in the sound passes into pain, which grows until one longs for the curtain to fall.

The time-conditions of a sensation—its duration and frequency—are connected with its feeling-tone only through their effect upon the intensity of the sensation.



When a sensation has reached the degree of intensity which is accompanied by the maximum of pleasure, and is then prolonged in consciousness or recurs frequently, the effect of such prolonged and frequent presentation is to reduce the intensity of the sensation, and hence to reduce its pleasurable feeling-tone. In some cases, however, the effect of prolonged and frequent presentation is to diminish the painful tone of a sensation, and even to cause it to pass over into a pleasurable one, as in the case of "acquired tastes." The explanation of these cases is to be found probably in the changes wrought in the bodily organism by persistent physical stimulation, such changes constituting an "adjustment" on the physical side analogous to "accommodation" of Feeling.

We thus reduce the question of the relation between Sensation and Feeling-tone to a matter of the Intensity of Sensation. We appear, however, to have some sensations which are painful, however moderate their degree of intensity; some tastes and some smells always seem to us unpleasant. This is a fact that clashes with the theory that we are considering—the theory, namely, that Sensations of every quality are pleasant, if of the right degree of intensity. It may be said, however, that those sensations which we always find unpleasant would have a pleasant feeling-tone if we got them with a less degree of intensity. Dr. Stout refers to the case of an American psychologist who aroused himself from abstraction in thought as he was travelling through the prairie, saying, "What a pleasant smell!" to find a moment later that the train had run over a pole-cat. The student may himself have had a similar experience of revising a judgment after the initial stage of a sensory-experience had passed. Physiological reasons, based on the effects of heredity on structure and function, have also been assigned as an explanation of the consistently painful tone of some sensations. If we accept either mode of explanation—both of which are, however illegitimate, inasmuch as they go outside of individual conscious experience—we clear away the main difficulty in the way of the hypothesis that Pleasure accompanies a moderate, Pain an excessive, degree of Intensity of Sensation.

Let us examine, in the second place, the relation between

Feeling-tone and groups or combinations of sense-impressions—that is, the relation between Feeling and Percepts. Again, the student should take some clearly defined perceptual experience of his own, and should examine it from this point of view ; he may recall, for instance, the experience of dancing to music, in which two sets of sensory-series, muscular and auditory, are combined into one co-ordinated series. We find the whole experience accompanied by Pleasure in so far as each group supports and reinforces the other, by Pain in so far as they fail to support one another—that is, in so far as the co-ordination of the two groups of series is not attained. Or we may compare the hedonic effect of harmony with that of discord, of symmetrically curved lines with that of irregular zig-zags, of rhythmic sounds with that of halting verse. What is there common to the pleasurable combinations that is absent from the painful ones? We find it to be something that is analogous to the “moderate intensity” of the sense-impressions that have a pleasant feeling-tone, but as regards these perceptual experiences it is more easily described in terms of Activity. Those combinations of sense-impressions are pleasurable which support one another in such a way that they easily enter into consciousness, so that we are able, without difficulty, to attend to a large field. We apprehend a large number of presentations because they combine in such a way as to give us unity in variety. On the other hand, those perceptual experiences are painful in which sensations impress us in their multiplicity. We cannot attain comparative simplicity by combination because the sense-impressions refuse to combine ; we are unable to get unity out of diversity. The painful effect of discord has been compared with that caused by “trying to reckon up a sum in one’s head, and failing because the numbers are too high” ; whereas, when a perceptual experience is pleasant—as in the case of dancing to music—it is because “more is commanded, with less effort.” On the perceptual level, then, we find that pleasure is the accompaniment of a large field easily apprehended, pain the accompaniment of too small a field of consciousness and of failure to grasp as a unity that which is presented together.

In the third place, we pass to Imagination. What characterizes pleasurable as distinct from painful images and trains of images? The student may now examine instances of his enjoyment of, and of his failure to enjoy, a poem or a picture or a novel. We find that when images freely and readily throng into our minds on the occurrence of a cue, their feeling-tone is one of pleasure; when they occur fitfully or incongruously, or fail to support one another, so that our mind remains comparatively bare and void, our feeling-attitude is one of pain. For example, the force of such a line as—

Not charioted by Bacchus and his pards

depends upon the number and determinateness and congruity of the images aroused in each reader. The degree of suggestiveness is a criterion of a work of art. Again, therefore, we find there is pleasure in proportion to the variety in the field of consciousness, together with a unity that makes it possible for the multiple particulars to be apprehended.

Lastly, we make our inquiry on the Ideational level. What is the characteristic of those ideas which come to us with a pleasurable feeling-tone as distinguished from those that are accompanied by pain? The student should now examine his experiences in reading a scientific work or listening to a lecture, in writing an essay, or working out a mathematical problem. He will find that those ideas are pleasant which are relevant to the purpose for which he is exercising ideational activity, and that those are painful that are irrelevant and obstructive. Thinking has been described as finding the means to an end, whether the end be a practical one or merely the conclusion of an argument. Those ideas which enable us to reach the end come to us with a pleasurable feeling-tone; ideas which form obstacles and hindrances to our purposes, whether practical or theoretical, have a painful feeling-tone. It is annoying to find, from a study of Bradshaw, a hiatus in our railway-system when we desire to reach a certain destination within a certain time, and it is painful to be confronted with an idea which conflicts with some theory that we are concerned to maintain or with some long-cherished belief. There is pleasure in the apprehension of aspects of our experiences



that give us large ideas, fitting in with our whole conceptual system, and thus increasing it both in extent and complexity. An instance of this is afforded by the peculiar pleasure that arises sometimes in suddenly realizing the significance and value of some commonplace with which we have long been familiar. The apprehension of ideas which refuse to fit into our conceptual system, or which, if accepted, would bring about a truncation of our system, is accompanied by pain; they involve conflict and a shrinkage in the field of consciousness. Conceptions which, in other contexts and to other minds, would have a painful hedonic-tone, become pleasurable if they entail the enlargement and increased differentiation of our conceptual system. Even the idea of the absolute futility of life is pleasurable to the pessimist in so far as it fits in—is congruous—with the purpose of his thinking. Audubon, the most thorough-going pessimist in *A Modern Symposium*, is accused of finding it “rather good to be able to find it so bad.”

We are now in a position to formulate the relation of Pleasure-Pain to the other factors of consciousness at all levels of cognitive development, and we accept the formula of Dr. Ward: “There is pleasure in proportion as a maximum of attention is efficiently exercised, and pain in proportion as such effective attention is frustrated by distractions, shocks, or incomplete and faulty adaptations or fails of exercise, owing to the narrowness of the field of consciousness and the slowness and smallness of its changes.”

According to this theory, then, which in the main has held the ground since the time of Aristotle, Pleasure is the subjective attitude which accompanies mental activity when normally exercised, Pain the subjective attitude which accompanies the abnormal exercise of activity. Exercise is abnormal when it fails to accomplish its end either through obstructions which cannot be overcome or through misdirection of energy. Activity, then, is accompanied by pain when it is balked or wasted; by pleasure in proportion as it is economically and effectively exercised. The effectiveness of Activity is determined largely by the possibility of making pre-adjustment for its exercise. We have seen that Attention involves a prospective attitude of



mind, that we attend to objects by making preparation to attend—that is, by mental adjustment and bodily accommodation. Attention is effective, then, in proportion as we are able to make this adjustment. A guttering candle is unpleasant because we are unable to accommodate our eye to the flickering light; rhythmic sounds and movements are pleasant because we know what to expect and adjust mind and body accordingly. Much is grasped with little effort, for there is no waste of activity. Aristotle pointed out a twofold condition of attaining the maximum of pleasure: (1) the faculty being exercised must be in perfect condition; (2) the energy must be directed to the best possible object. “Since every sense energizes with reference to the object perceived, and that energizes perfectly which is in a healthy state and directed towards the best of the objects which fall under it . . . in each case the energy is best when the sense is healthy and directed towards the most excellent of the objects within its scope. This energy must be the most perfect and the most pleasant.” (*Ethics*, X., 4.)

Our conclusion, then, is that the normal condition of the conscious individual is one of pleasure, inasmuch as pleasure is the concomitant of conscious activity normally exercised, and that the degree of pleasure varies with (1) the available amount of conscious activity, and (2) the size and fulness (if one may so speak) of the object presented to consciousness. Pain we regard as abnormal, inasmuch as it is due to excessive activity; it is the concomitant, that is to say, of attention to an object, when our store of energy is small and we are unequal to the effort, and of attention to an unsuitable field, unsuitable because (1) made up of parts unconnected with one another, so that attention is baffled and wasted, or (2) so small and unchanging that it affords no scope for our activity.

In thus treating of the nature and conditions of Pleasure and Pain, we have limited our considerations to what can be ascertained and verified by introspection, and therefore we have avoided all reference to the connection between Feeling and the organism in general and neural process in particular. Much has been written about the nature of this connection. It has been said, for instance, that Pain is the “subjective concomitant of destructive action or

insufficient nutrition in any sentient tissue," and Pleasure "the subjective concomitant of the normal amount of function in any such tissue"; that experiences are painful when the wear and tear of the nervous tissue which functions concomitantly with the conscious experience outruns the repair; and that experiences are pleasurable when repose has led to a storage of surplus nervous energy. These statements are now cursorily mentioned as instances of hypotheses framed by psychologists which may be of service to the physiologist. It is the physiologist who must test their worth. Such hypotheses are in no sense explanations of the sequence of conscious process which is the subject-matter we have proposed to ourselves. We repeat that we are concerned directly only with what can be known by introspection, and introspection reveals nothing of the structure and functions of bodily tissues.

#### REFERENCES

- Stout : *Manual*, Book II., Chap. VIII.  
                    Book III., Chap. III.  
                    Book IV., Chap. IX.  
Ward : *Ency. Brit.*, Vol. XX., pp. 67-72.

## CHAPTER IX

### THE EMOTIONS

HAVING now completed our survey of the ultimate factors of mind, we are in a position to analyse concrete experiences with a view to grouping together those that possess important characteristics in common, and to discovering the conditions of their occurrence; that is to say, we may now enter upon introspective analysis of conscious states with the object of (1) classifying them, (2) framing generalizations about them.

The psychologist finds it convenient to begin with the classification of mental states that the plain man has made for his own practical purposes. It may be that careful and systematic introspection will justify the rough-and-ready classification implied by the terms ordinarily used in describing our own mental states and the states of others, or it may be that there are important aspects that the practical man has overlooked, and their discovery may necessitate a new scheme of classification. We frequently speak of our Emotions—of Fear, Surprise, Joy, Grief, of Love and Hate and Sympathy, of Pride, Vanity, Remorse, and Shame; we speak of Will—of Desire, Temptation, Choice, Decision, Resolution, Determination, and so on. We now propose to apply the conceptions of consciousness we have gained from our study of mind in its ultimate aspects to the concrete experiences which come under the two heads indicated by the terms enumerated above—namely (1) Emotion, (2) Will. In this chapter we deal with emotions only.

The older psychologists took the various emotions, to which ordinary language has given a name, as ultimate data, and endeavoured merely to describe them in general terms and to classify them according to a consistent and orderly scheme. Not one of these classifications is now

considered satisfactory, and psychologists no longer regard the making of a hierarchy of emotions as their task. They are still engaged upon the preliminary work of analysis of emotional experiences. They are not content to take the terms Fear, Anger, Love, Grief, Remorse, and all the other emotions to which men have given names as standing for states, each of which is *sui generis*, and to proceed merely to describe and classify those states as they would material objects. The older treatment of Emotion was a "natural-history" or "nature-study" treatment; the treatment of the modern psychologists whose work we are following is an attempt at scientific analysis and explanation. "The mere description of the objects, circumstances, and varieties of the different species of emotion may go to any length. . . . But there are limits to the profitable elaboration of the obvious, and the result of all this flux is that the merely descriptive literature of the subject, from Descartes downwards, is one of the most tedious parts of psychology. And not only is it tedious, but you feel that its subdivisions are to a great extent either fictitious or unimportant, and that its pretences to accuracy are a sham. . . . The trouble with the emotions in psychology is that they are regarded too much as absolutely individual things. So long as they are set down as so many eternal and sacred psychic entities, like the old immutable species in natural history, so long all that *can* be done with them is reverently to catalogue their separate characters, points, and effects."<sup>1</sup>

The abandonment of this "natural-history" treatment of the subject is due in large part to the formulation, some twenty years ago, by Professor James, of a theory of the emotions which has been the cause of much controversy. Our method in this book has been to avoid controversial treatment, and even reference to controversy; but now that the student has gained the necessary outlook upon the subject as a whole, he may find it profitable and suggestive to follow, in outline, this particular controversy. In so doing he will gain valuable insight into psychological methods.

We will begin by stating James's theory and summarizing

<sup>1</sup> James, *Textbook*, p. 375.



the evidence and the arguments he brings in support of it; we will next consider the objections that have been raised against his treatment of the subject, and will then pass on to analyze Emotion in the way that commends itself to those who are unable to accept Professor James's hypothesis.

We will state the theory in Professor James's own words: "Our natural way of thinking about emotions is that the mental perception of some fact excites the mental affection called the emotion, and that this latter state of mind gives rise to the bodily expression. My theory, on the contrary, is that the bodily changes follow directly the perception of the exciting fact, and that our feeling of the same changes as they occur *is* the emotion. Common sense says, we lose our fortune, are sorry and weep; we meet a bear, are frightened and run; we are insulted by a rival, are angry and strike. The hypothesis here to be defended says that this order of sequence is incorrect, that the one mental state is not immediately induced by the other, that the bodily manifestations must first be interposed between, and that the more rational statement is that we feel sorry because we cry, angry because we strike, afraid because we tremble, and not that we cry, strike, or tremble because we are sorry, angry, or fearful, as the case may be. Without the bodily states following on the perception, the latter would be purely cognitive in form, pale, colourless, destitute of emotional warmth. We might then see the bear and judge it best to run, receive the insult and deem it right to strike, but we should not actually *feel* afraid or angry."<sup>1</sup>

His thesis is, then, that the emotion *is* the expression; that the order of events in an emotional state is (1) the perception of some exciting fact, (2) bodily disturbance set up in a kind of reflex way by the perception, (3) the apprehension of that bodily commotion. Such apprehension constitutes the emotion. It will be seen that this theory makes emotion essentially cognitive: it makes emotion to consist in our awareness of our bodily state.

In support of his theory Professor James adduces evidence consisting of conscious experiences of two different

<sup>1</sup> *Op. cit.*, pp. 375-376.

kinds, the first set of instances being obtained by the introspective method, the second by the interpretative method of observing mind.

(1) He appeals to introspection in support of his statement that there do occur states of consciousness in which diffused bodily effects follow immediately upon perception, without the intervention of any state we should call emotional. The instances he adduces are those of the bodily perturbation which many persons experience when they are in a country lane in the dark, or when some sudden movement occurs, or when they see a friend near the edge of a precipice, though they make no image of anything to be feared and may even know for certain that there is no cause for alarm. He adduces further such instances as the "cutaneous shiver" and the "heart-swelling and lachrymal effusion that unexpectedly catch us in listening to poetry, drama, or heroic narrative."

The student should, if possible, recall similar experiences of his own. If he does not accept this theory, he will have to account for these experiences on some other principle. Professor James asserts merely that such experiences do happen, and uses them in support of his contention that all emotional experiences are set up in this immediate reflex way.

(2) The second set of instances brought forward to support the theory consists of cases of mental disease, in which the patient suffers the bodily perturbation which usually accompanies an emotional state, and, it is assumed, experiences the emotion, though there be no "exciting fact." "The best proof that the immediate cause of emotion is a physical effect on the nerves is furnished by those pathological cases in which the emotion is objectless. . . . In every asylum we find examples of absolutely unmotivated fear, anger, melancholy, or conceit." The explanation offered is that in these cases Emotion is the cognition of a particular bodily state, induced by brain disease—a bodily state similar to that normally set up by the "perception of an exciting fact." This theory, therefore, would bring these pathological cases and normal cases of Emotion under the same class. If we do not accept it we must, of course, account in some other way for these "unmotivated" emotions.

Having brought forward this evidence, Professor James proceeds by argument and places before us what he calls the "vital point" of his whole theory. "If we fancy some strong emotion and then try to abstract from our consciousness of it all the feelings of its bodily symptoms, we find we have nothing left behind—no 'mind-stuff' out of which the emotion can be constituted, and that a cold and neutral state of intellectual perception is all that remains. . . . What kind of an emotion of fear would be left if the feeling neither of quickened heart-beats nor of shallow breathing, neither of trembling lips nor of weakened limbs, neither of goose-flesh nor of visceral stirrings were present, it is quite impossible for me to think. Can one fancy the state of rage and picture no ebullition in the chest, no flushing of the face, no dilatation of the nostrils, no clenching of the teeth, no impulse to vigorous action, but in their stead limp muscles, calm breathing, and a placid face? The present writer, for one, certainly cannot. The rage is as completely evaporated as the sensation of its so-called manifestation, and the only thing that can possibly be supposed to take its place is some cold-blooded and dispassionate judicial sentence, confined entirely to the intellectual realm, to the effect that a certain person or persons merit chastisement for their sins."<sup>1</sup>

If this contention in support of the theory is to be met, it will be by finding a flaw in the reasoning; for the facts gained by introspection appear incontrovertible. Before, however, proceeding to examine the validity of this argument, we may refer to further statements of Professor James in support of his theory. First, he defends it against the charge of "materialism." His theory is that an emotion is the concomitant of the functioning of the brain consequent on the excitation of afferent nerves. The student will remember that (in Chapter III.) we accepted the theory of Psycho-physical parallelism. So, whatever theory of Emotion we accept, we shall regard the conscious processes which constitute an emotional state as the concomitant of nervous process, and, whether this originate at the periphery or at the centre, it remains merely the concomitant of psychical process. On any view, emotions are quite different in kind from nervous

<sup>1</sup> *Op. cit.*, p. 379.



process, and "if they are deep, pure, worthy, spiritual facts on any conceivable theory of their physiological source, they remain no less deep, pure, spiritual, and worthy of regard on this present sensational theory."

Secondly, Professor James points out that his theory that an object arouses an emotion by setting up a number of bodily changes accounts for the great variety we find in emotional states, for it is obvious that an indefinite number of permutations and combinations of such changes are possible. If we reject this theory, the one we adopt must, of course, account equally for the variety and complexity of emotional states.

Lastly, Professor James draws a corollary from his theory. If the consciousness of bodily disturbances constitutes the emotion, then it follows that the voluntary arousal of such bodily changes should lead to the emotion. And introspection bears this out. "Refuse to express a passion and it dies. Sit all day in a moping posture, sigh, and reply to everything with a dismal voice, and your melancholy lingers. . . . Smooth the brow, brighten the eye, contract the dorsal rather than the ventral aspect of the frame and speak in a major key, pass the genial compliment, and your heart must be frigid indeed if it do not gradually thaw!" Probably on reflection we shall all be able to accept this statement; therefore, if we reject the present theory, we must see that the one we adopt equally well covers the facts referred to.

We will now consider some of the objections to the theory brought forward by Professor Stout.

First, to take the "vital point," that we cannot conceive of an emotional state unaccompanied by organic disturbance. This may be true, but it does not follow that organic disturbance is emotional. Two things may be inseparable from one another without being the same thing. For instance, we have maintained that there is no attention without feeling, but we do not regard feeling as being attention. There is no line without length and direction, no body without form and colour; but it does not follow that length is direction, that form is colour. Neither does it follow that expression is emotion, though it may be true that there is no emotion without expression. This argument, then, is inconclusive.



Secondly, objection is taken to the statement that the "so-called bodily manifestations" of an emotion are reflex—that is, set up directly by perception. A reflex action is usually defined as one that occurs invariably and uniformly on the occurrence of a specific kind of physical stimulus. Swallowing, coughing, and blinking are reflex actions caused by the transference of afferent into efferent nervous impulses. We know of no kind of reflex action set up by perception as distinguished from sensation, unless we regard the bodily perturbations referred to<sup>1</sup> as the first set of instances adduced in support of James's theory as reflex actions. To do this would be to take all the usual meaning out of the word "reflex," and would amount to begging the question.

Thirdly, if perceptions do set up reflexes, it is difficult on Professor James's theory to account for widely different reactions upon similar percepts. There is not much difference between the percept of a chained bear and the percept of a bear at large, but a person reacts upon the two percepts very differently; "to the one object he presents a bun, and to the other a clean pair of heels."

Lastly, similar bodily states, however caused, ought to be accompanied by the same emotion, if the emotion be the cognition of the bodily state. But this is not so; we may grow "onion-eyed" without feeling grief.

For these reasons and others which may occur to the student we reject Professor James's hypothesis, and seek a theory which will cover the facts more satisfactorily.

The student is advised to select from his own past experience some emotional state of a well-marked kind, and to analyse it into its cognitive, affective, and active elements with a view to discovering its characteristic features. This will be in accordance with the procedure suggested earlier in this book—namely, to examine first those psychoses where the factors are most fully developed, to base on such an analysis a general theory, and then to apply it as far as may be to more obscure cases.

We may take as a typical case of what Professor James calls a "coarse" emotion, our state of consciousness on being aroused in the middle of the night by fire. It may

<sup>1</sup> See page 79.

be (1) (*a*) that we, first of all, hear confused sounds, and become aware of a pungent smell, an unpleasant taste, a smart in our eyes. At first, in our half-waking condition, we assign no meaning to these sense-experiences; they approximate to that state of "pure sensation" which has been called a "psychological myth." But as they force themselves upon our attention, (*b*) they tend to call up a train of images and ideas, varying of course with our previous experiences, so that our immediate particular experiences become determined by thought, and we take them to "mean" the house on fire. This idea brings with it the idea of danger; our very life is threatened. (2) Our whole body seems to reverberate with the shock; we turn faint and cold, our limbs tremble, our mouth and throat become dry. (3) We think of a means of escape from our present discomfort and from the danger threatening our life. (4) We go to the window and call for help, or make our way to the stairs.

This may be taken as a typical instance of an experience involving the emotion to which we give the name Fear. We can distinguish in it at least four sets of occurrences: (1) a number of cognitive experiences, (*a*) sense-impressions and percepts, which we took up into (*b*) a "world of thought" and interpreted as constituting a situation, disturbing our comfort and tending to thwart our strong desire to live; (2) bodily commotion; (3) the ideas that occurred to us of altering the situation; and (4) the purposive actions involved in carrying out those ideas.

Which of these groups constitute what can properly be called Fear? If we accepted Professor James's theory, our answer would be group (2), or possibly group (2) and group (1*a*). According to the view of Emotion now to be put forward, the answer is the whole of group (1) and group (2), and those groups only. An emotion may be described as the apprehension of a general situation tending to further or to thwart some existing conation, this apprehension being accompanied by diffused bodily changes. The first element in an emotional experience is not the *mere* perception of an object, but the apprehension of a *general* situation in which we find ourselves—that is, an idea. As Professor Stout points out, there is no special class of objects the perception of which causes anger, or fear, or joy,

or grief, as the case may be. Anger, for instance, may be caused by widely different objects; there is nothing which acts on man as a "red rag" is supposed to act on a bull. A baby may be made angry by having a limb held fast, a cat by seeing her kittens taken away, a child by being "kept in"; anger is sometimes produced in adults by mere physical fatigue, by the lack of deference, or by adverse criticism on the part of others. In all these cases the real cause of anger is not an object, but the meaning that is given to a situation, which, in every case, is one tending to *thwart* activity in some way. Our activity is thwarted if we find ourselves unable, through sheer tiredness, to carry out our desires, or if, through the action of others, our self-esteem is lowered—if, that is to say, our idea of ourself shrinks as we find out that other people are thinking less well of us than we imagined. Similarly, if we analyse other emotional experiences, say of Joy, we shall find that they always include the apprehension of a situation which *further*s some existing tendency to activity.

It is not the case, however, that all experiences that further or thwart some existing desire can properly be called emotional. An emotional state always involves some mental excitement—it is the result of some shock; the furthering or thwarting, that is to say, comes unexpectedly, so that its effect is not discounted by having been anticipated and adjusted for. If our attitude towards the furtherance or hindrance be mere acquiescence, we should not call our state an emotional one. The first element, then, in an emotional psychosis is, as Professor James said, an "exciting fact." He meant, however, a perception that excites a reflex disturbance of our body; we mean a fact that excites our mind—that is, that unexpectedly furthers or thwarts some desire of ours. Such mental excitement, taking the form of rapid reinstatement of images and ideas previously connected with the exciting element and involving anticipation of future experiences, more or less definite, is accompanied by a degree of brain-disturbance proportionate to the amount of mental activity. This diffused brain-disturbance sets up many efferent impulses, which cause the muscular contraction and the glandular secretion and the diffused organic changes which we have



called "bodily commotion." These diffused bodily changes act in their turn as stimuli to the afferent nerves, whose excitation increases the brain-disturbance, which again excites the action of the efferent nerves, and so on, the result being increasing bodily commotion, due to this fact of organic resonance or reverberation. According to our analysis, then, an emotion includes (1) apprehension of a situation such as has been described above, and (2) the bodily changes, both muscular and organic, set up as the result of the exciting nature of the situation. These changes are frequently called the "expression of the emotion" or its "bodily manifestations"; but such terms are misleading, for they suggest that the emotion is something which has existence in consciousness and seeks to express or manifest itself, whereas the expression or manifestation (that is, the bodily disturbance) is an essential factor of an emotion.

It will be clear to the student that our view differs from that of Professor James in that it emphasizes the ideational character of the experience that precedes the bodily commotion, whereas it coincides with it in that it regards the "expression" as emotion. As has been said, the immediate sense-experiences are taken up into a world of thought, and their meaning, or *worth to us*, is apprehended. The degree of excitement, and hence the amount of bodily disturbance, depends upon our estimate of our particular experiences. This estimate varies with our stage of mental development, and occasions for pronounced emotions of such a nature as those of Fear and Anger, tend to diminish as we grow older. As our experience widens, fewer situations excite us; for, as we build up our conceptual system, we gain mastery over our world—the means at our disposal for modifying situations which thwart our activities are infinitely increased. The educated man is not subject to blind panic. Moreover, the situations which further our conative tendencies fail also to excite us as they did when our conceptual system was less determinate, for our activities tend to become restricted to certain definite channels, and we learn to expect less of the world. Our emotions tend to take subtler forms, which do not involve bodily commotion to the same degree.

When we speak of bodily commotion as being a part of



Emotion, we mean, of course, bodily commotion as *experienced*—that is, as forming part of the content of an individual consciousness—not the bodily changes as they are manifest to an onlooker or known to a physiologist. These are purely physical, not psychical, objects.

We may tabulate the elements in an emotion thus :

(1) PSYCHICAL SERIES	(2) PHYSICAL SERIES
<p>(a) The apprehension of a situation tending to further or to thwart some conative tendency.</p> <p>(b) Organic sensation due to bodily commotion.</p>	<p>(a) Diffused brain-disturbance set up by the excitation of afferent nerves in so far as the situation apprehended involves sense-impressions, and by the excitation of the cortex in so far as it involves ideas, and the consequent efferent impulses.</p> <p>(β) Afferent-nerve impulses, increased brain-disturbance, consequent efferent impulses, resulting afferent impulses, and so on.</p>

As psychologists, the physical series does not immediately concern us. We have broken our rule of avoiding reference to the nervous concomitants of a psychosis in order to make clear the difference between the physical changes that do concern us and those that do not. The psychologist is immediately concerned with the bodily changes in the psychical series (b), in so far as they enter into and modify consciousness ; as psychologist, or what is saying the same thing, by introspection, he knows nothing of the changes in the physical series.

If this account of an emotion be correct, we shall discover in such experiences (1) cognitive, (2) active, (3) affective elements. Cognition and Activity are obviously involved in apprehending the situation, and Feeling (Pleasure-Pain and Conation) prompts the activity. This

is the first direct reference in this context that we have made to Feeling, and paradoxical as it may appear, it is nevertheless true that Feeling is not the factor of consciousness on whose modification the specific nature of an emotional state depends. Fear is fear not because it is painful, but because a situation is apprehended as dangerous. It does not differ from Sympathy or Remorse or Gratitude through modification of the feeling-element, as such. Inasmuch as Feeling accompanies all forms of activity, the factor of Feeling in any emotion is made up, as it were, of strands of Pleasure and Pain, accompanying all the different forms of activity involved. Speaking generally, we may say that an emotion set up by a situation tending to further our activity is pleasurable, and an emotion set up by a situation tending to thwart activity is painful; but inasmuch as each form of Cognition has its own feeling-tone, there may be elements of pain in a pleasurable emotion and of pleasure in a painful emotion.

We may now consider the conscious processes which generally occur as the sequel of an emotional state, and for this purpose the particular experience of Fear that we have already described in this chapter may be referred to again. We noted that as soon as we had apprehended our position we turned our energies to altering it—that is to say, we began at once to plan means for alleviating the situation and for escaping from it. We found that this involved (1) framing ideas of possible means of escape, (2) actions carrying out our purpose. Now, in so far as we are engaged in devising means to alter the situation, which is the cause of the emotion, and in carrying them out, we are not under the influence of the emotion—that is, we are not in an emotional state. Emotions tend to issue in purposive action; but purposive action is incompatible with Emotion in the sense in which we have used the term. No doubt we begin to make plans and to carry them out while our state is still emotional in the sense that our body is perturbed as the result of mental excitement; but in so far as we are entertaining ideas which tend to modify the exciting situation, so far our state is not emotional. The “practical person” begins at once to modify the situation; the person with an “emotional temperament” gives himself up to it—that is, he prolongs the situation. Let us

suppose the person aroused by an alarm of fire to be a member of a fire brigade. As soon as he apprehends the situation there come into his mind thoughts of his duties and responsibilities. Ideas as to a definite course of action to be followed in circumstances such as these are reinstated in his consciousness; he finds himself at once giving or obeying orders, ringing the alarm-bell, or working the hose. In so far as he is doing these things, he is not engaged in apprehending a situation as dangerous, nor is his body in that state of commotion which we described as constituting an essential part of the emotion of Fear; that is to say, in so far as he is modifying the situation both by thought and action, he is not "afraid." His mental attitude is purposive, not emotional; hence it is that we said that the first two only, of the four groups enumerated on page 83, constituted the emotion. No sharp line, however, can be drawn between those movements which constitute part of group (2)—the bodily commotion—and the purposive movements of group (4); but the theoretical distinction between them remains valid. It is not, strictly speaking, correct, therefore, to call running away an expression or manifestation of the emotion Fear. In so far as we are really running away there is no occasion for fear, for we are successfully modifying the situation; but if, in our excitement, we are merely running round the fearsome object and not away from it, such running would be part of the bodily commotion constituting the "expression" of Fear, and would tend to intensify and prolong the situation. This is how it comes about that panic is increased by flight and grief intensified by sobbing.

This leads to the question of the control of Emotion. We have seen that there are two aspects of an emotional state—(1) the ideational aspect, (2) the bodily changes. The emotion may be altered, then, on two sides: (1) the situation apprehended may be modified; (2) the bodily disturbance may be checked or increased. We may call either kind of alteration Emotional Control. If we are angry with a person who we think has insulted us, we may control our emotion by altering the situation, ideationally: by finding mitigating circumstances, such, possibly, as our own irritating or provocative conduct; by calling to mind good qualities which we know the other person



to possess ; or by remembering that we regard anger as unworthy and unbecoming in a person of our aspirations, and so on. Such trains of thought modify the situation, and in so far as it is modified by our own ideas—that is, by our thinking the situation afresh—so far our emotion is under control. Or we might have controlled the emotion by checking the bodily commotion set up by the excitement caused by our apprehending the insult. We might have overcome the trembling of our limbs and the disturbed action of the heart by setting our bodies to do something incompatible with such agitated movements. We might, for instance, have set ourselves to play the piano or to take part in a game of hockey. In so far as we do these things we are not under the emotion of anger ; so, for the time being, we succeed in controlling the emotion by physical means, but it is, of course, possible that our anger may recur, after the interval, in as strong a form as before. The only permanently effective way, then, of controlling emotion is by thought—that is, by apprehending the exciting situation in a different aspect.

We have now to consider whether our theory of the two-fold nature of Emotion affords explanation of those instances that Professor James adduced in support of his contention—instances, that is to say, both normal and abnormal, of unmotivated emotion. We would not admit that some of the cases—such as fainting at the sight of blood and the physical loathing set up in some people by the presence of cats, beetles, and other creatures—are in any sense emotional. The explanation of them is obscure, and it may be wholly physiological. The bodily disturbance may be due to an instinctive reaction, explicable only by ancestral history or the history of the race—that is to say, by heredity. The student of Psychology must, however, be on his guard against the temptation of attributing to the action of heredity those mental occurrences which he finds it difficult to explain.

As to the other cases, we can, on our theory of Emotion, explain them by reference to the principle of Association. When once a mental state (A) has been connected with certain bodily conditions (B), then when any one of the components of either A or B recurs, the whole complex (A and B) with which that element was previously con-



nected tends to recur. When we have once had an emotion, the recurrence of any component of either the exciting situation or the bodily commotion tends to the reinstatement of that emotional state as a whole. It may be that we cannot always trace the previous connection; no doubt many of our so-called instinctive reactions are due to impressions made on our minds by the stories of foolish nurses. The pathological cases are explicable on the same principle. The previous occurrence of an emotion was accompanied by a certain bodily condition; if that bodily condition be re-induced in any way (it may be by the morbid action of nervous tissue) the emotional state itself tends to recur and the patient reconstructs exciting situations that exist only for his own consciousness.

This same principle of Association explains also those facts to which Professor James refers when he notes that the voluntary arousal of the "bodily manifestations" of an emotion tends to arouse the emotion itself. Whistling is usually accompanied by light-heartedness; therefore when you are downhearted, set yourself to whistle, and your former lightheartedness will tend to be reinstated. When Henry V., before Harfleur, wanted to arouse the courage of his dejected troops, he bade them:—

Now set the teeth and stretch the nostril wide;  
Hold hard the breath and bend up every spirit  
To his full height. On, on, ye noblest English!

Association did its work here.

Our theory, equally with that of Professor James (or more than that, inasmuch as ours includes his), accounts for the extreme diversity and variability of emotional states. There is no limit to the possible combinations of cognitive, active, and feeling elements, in their varying degrees, concerned in the apprehension of an exciting situation, nor to the variety and complexity of the accompanying bodily disturbance. Hence we expect to find our emotional life one of incessant flux, and it appears a futile task to take the names that men for purposes of intercourse with one another for practical ends have given to some of their emotional states, and to attempt to give them precise connotation. As Professor James points out, the fact that we have so many synonymous terms (for

instance, hatred, antipathy, animosity, resentment, dislike, aversion, spite, abhorrence, etc.) is evidence of the impossibility of exact discrimination between such flowing states.

We may, in conclusion, mention an important distinction that has been drawn between Emotions and what have been called Emotional Dispositions and Sentiments. An emotional disposition is a tendency to experience a specific emotion when a particular object is perceived or thought of. If two people "get the wrong side" of one another, each has an emotional disposition to become irritable and angry in the presence of the other. Dislike is an emotional disposition; so is Love. When the object of Love or Dislike occupies the focus of consciousness, Loving and Hating tend to occur as emotional states.

A Sentiment is an Emotional Disposition the object of which has an ideational existence only. It may be that our ideas of our College, our Country, the Church Universal, of Humanity, Art, and Religion, or any other idea forming a permanent and essential part of our conceptual system, tend to arouse in us emotion; if so, such emotions are "episodes in the life-history of sentiment."<sup>1</sup> As we grow older, while our emotions become less strong, our sentiments tend to occupy a larger and more persistent part in our conscious life.

We have now completed our survey of Emotion. We have left on one side the question of the origin of emotional expression—that is, of the bodily commotion which forms part of an emotional state—inasmuch as it is bound up with the general question of Movement, which remains to be dealt with in the next chapter.

#### REFERENCES

- James : *Textbook*, Chap. XXIV., or  
*Principles*, Vol. II., Chap. XXV.  
 Stout : *Manual*, Book III., Chap. IV.  
           Book IV., Chap. IX., § 5.  
           *Groundwork*, Chap. XV.-XVII.  
 Ward : *Ency. Brit.*, Vol. XXXII., pp. 64-66.

<sup>1</sup> Stout, *Manual*, p. 594.

## CHAPTER X

### THE WILL

THE term Will or Volition has been used by psychologists in two ways—in a wide, and in a narrow sense. Understood in its widest sense, Will denotes all the conscious processes that precede and accompany bodily movements. But this is to make it practically synonymous with Activity, one of the three ultimate factors of mind. We therefore shall use the term in its narrow meaning as standing for the psychical antecedents of an action deliberately chosen; we take it to denote the conscious self-activity involved in *purposive* action. We may with advantage substitute the term Voluntary Decision for Will in this narrow sense.

It is obvious that before we can decide upon an action we must have in our minds an idea of what we are going to *do*—an idea, that is, of the movements necessary for the performance of the act. Purposive action, then, necessarily implies (1) previous motor-experience, and (2) reinstatement, more or less explicit, of that experience. Hence, before proceeding to analyse the psychosis we have called Voluntary Decision, we must deal with Movement—*i.e.* motor experience—in general.

We have already, in the chapters on Sensation and Perception, dealt with one aspect of Movement. Movements are objects that are presented to consciousness by means of our senses, just as material objects are so presented. From this point of view movements are objects, consisting of changes in position of parts or of the whole of our body, and such changes may therefore be called Motor-objects. Motor-objects, when presented to consciousness by means of muscle-joint-tendon sensations (accompanied, it may be, by changes in our visual and tactual impressions), may be called Motor-presentations. Movements, then, may be regarded as objects (motor-

objects), which cause a specific kind of sensory experience. The peculiarity of this kind of sensory experience (which we may call Motor-experience) is that it is under our control in a way that visual, auditory, or tactual experiences are not, and it has, therefore, special characteristics due to this special relation to consciousness. We cannot see a butterfly when we will, but we can, when we will, get the experience of moving our arm. We have now to study the conscious processes involved in having motor-presentations as distinguished from other kinds of sensory experience.

We have to take as an ultimate fact that movements occur; this is a fact of the material world just as much as are sound-waves and ether-vibrations. Muscle-joint-tendon sensations, then, are ultimate just as seeing and hearing and tasting are ultimate. We may, therefore, proceed by distinguishing different forms of motor-experience due to differences in the antecedents of movement.

Psychologists have distinguished two important kinds of Movement—or Motor-objects—which constitute the motor-experience which precedes Purposive Movement and in which the origin of purposive action must be found. They are (1) Reflex Movements, (2) Impulsive Movements. Our object in examining the nature of these movements is to find a starting-point for those purposive movements which form so large a part of our conscious life. Purposive movements, it must be borne in mind, differ from reflex and impulsive movements inasmuch as they involve (1) an idea of the end for which the movement is initiated, and (2) some prevision of the movements by which the end can be accomplished. Thus, as we have said, purposive action presupposes motor-experience and the child gets that motor-experience from reflex and impulsive movements.

A reflex movement is the reaction of a part of the organism upon some specific stimulus; it is "the immediate motor-response to centripetal excitation" dependent upon the stimulation of *afferent* nerves. Two kinds of reflex movements have been distinguished: (1) the Physiological Reflex; (2) the Sensation-Reflex. The Physiological reflex movement takes place inevitably and



invariably on the occurrence of a specific stimulus. The beating of the heart, the dilatation of the pupil, are always—breathing, swallowing, are usually—physiological reflexes. They do not involve a specific sense-experience; in one sense they enter consciousness, inasmuch as their occurrence modifies our organic sensation as a whole, but they do not enter it as separate experiences. The Sensation-reflex is set up by the action of an occasional stimulation. Blinking, coughing, sneezing are sensation-reflexes; and so are breathing and swallowing when anything interferes with their normal course. These reactions, unlike the physiological reflex, do enter consciousness as specific experiences; usually, indeed, they have a place only in the margin of our consciousness, but they may occupy its focus. Inasmuch as they involve sensory experience of a specific kind, it is clear that sensation-reflexes (unlike the physiological) contribute to the motor-experiences of the child.

Impulsive movements are due to the initiative of the conscious individual. They imply (1) cognitive activity, and (2) feeling, including appetition and aversion which involve a tendency to alter the conscious experience. Now, consciousness is connected with the body in such a way that when we have sense-impressions, accompanied as they are by a feeling-tone and arousing as they do the consequent conation, Movement or a tendency to Movement follows; this we accept in the present state of our knowledge as an ultimate fact. An impulsive movement is a reaction upon some object of cognition by the subject in consequence of its feeling-attitude towards that object. Impulsive movements, then, are those that are due immediately to Pleasure-Pain; they imply an active tendency in the subject which is determined by Cognition and prompted by Feeling. The earliest movements of a child—*e.g.* the stretching of his limbs—are probably of this nature. He has sense-experiences corresponding to, say, the cramped position of his limbs; this sense-experience has the feeling-tone Pain, and sets up an aversive tendency which issues in movement. The movement on its physiological side may be explained by reference to the mechanism of the nervous system, which is so constructed that the excitation of an afferent nerve tends to produce

an efferent impulse. This is a fact in the physical world, and the connection between the aversive tendency (a psychical event) and the efferent impulse (a physical event) remains unexplained.

Some of the impulsive movements consist, from the first, of a series of co-ordinated movements which enable the organism to adapt itself to its environment in some definite way. Sucking in a child and pecking in a chick are impulsive movements of this co-ordinated kind. Such co-ordinated movements are called Instinctive Movements. If any explanation of them can be given, it must be by reference to the history of the race. For us who are confining our outlook to the life-history of an individual, instinctive movements must be taken as ultimate data. From impulsive movements, whether simple or co-ordinated, the child gets some of his earliest motor-experiences.

We have now to enquire in which class of movements—reflex or impulsive—the purposive movements of more developed consciousness have their origin. It has been held by some psychologists, notably by Herbert Spencer, that purposive movements have been evolved from reflex movements. According to this theory, when, in the evolution of the race, automatic or reflex movements had reached a certain degree of complexity, consciousness intervened and directed them. To most psychologists this hypothesis appears to beg the question and to explain nothing. Those who reject the theory of the evolution of purposive movements from reflex movements are, however, concerned to explain the origin of reflex movements. Some writers conceive of reflex actions as degraded purposive actions; they regard all movement as originally feeling-prompted, and suppose that movements now unaccompanied by consciousness once required explicit attention for their performance. In support of this theory of the degradation of purposive actions, psychologists point to the process, in the individual, of the acquirement of what have been called *Secondarily-automatic* movements, to distinguish them from reflex movements, which, in the individual, are *Primarily-automatic*. *Secondarily-automatic* movements consist of a series of co-ordinated movements which, as the result of practice, have become so familiar that they can be carried out

without explicit attention. Attention is necessary to initiate the series, but when once set going it carries itself on. We choose a familiar piece of music and sit down to the piano, but when we have begun to play our attention may be directed to something quite different. The truth seems to be, however, that such actions do not resemble reflex actions, which occur inevitably and invariably upon a specific stimulus, but are rather instances of elaborate and complex motor-adaptation.

Whatever may be the value of the hypothesis as to the origin of reflex movements, we reject the theory that the origin of purposive action is to be found in automatic movement, and look for it in those feeling-prompted movements we have called Impulsive. It seems clear that, though in so far as we attend to reflex movements they affect our subsequent conscious processes by enabling us to reinstate in some degree the motor-experiences they have involved, yet we should never learn to co-ordinate movements in the complicated way in which we do in purposive action, if our only data were the motor-experiences involved in reflex movements. We are able to learn from our experience of impulsive movements what we are unable to learn from reflex movements, owing to the special relation that exists between impulsive movements and Feeling. Impulsive movements are set up by the cognition of an object—in the beginning the object is constituted by bodily conditions—which causes in the subject either Pleasure or Pain. If the feeling-attitude be Pleasure, the tendency will be for the subject to set up movements that retain the pleasurable object in consciousness. The baby goes on sucking and grasping the warm bottle of food because it prolongs, by these movements, pleasant experiences; such movements, then, are the result of an appetitive impulse. If the feeling-attitude towards an object presented to consciousness be Pain, the subject initiates movements to get rid of the painful object; such movements are the result of an aversive impulse. Purposive movements, therefore, have their origin in Conation—that is, Appetition or Aversion. Appetitive movements are the effect of Pleasure; the subject continues those impulsive movements which prolong or enhance the pleasant experience.



Aversive movements are the effect of Pain; the subject desists from movements that bring him painful experiences, and initiates other movements to remove the painful object. His procedure is at first tentative; he may, perhaps, have to make many movements which fail to remove the painful object before he comes at last upon a movement which is successful in ridding him of the unpleasant experience. Thus the child in the cramped position only gradually learns the most effective way of stretching his limbs. The tentative procedure may have to take place many times, but on each successive occasion the child will tend to be more prompt in finding the right movement, as he grows familiar with the sensory-series and gains facility in adopting the motor-series to its cues, according to the process described in Chapter IV. as motor-adaptation.<sup>1</sup> Inasmuch as Pleasure and Appetition tend merely, at first, to make the child *continue* movements which have already brought about a pleasant experience—whereas Pain and Aversion tend to make the child *initiate* a different set of movements—it is Pain rather than Pleasure which at first is the main factor in the development of purposive action. Pain and Aversion prompt the child to useful experiments in movement. As Dr. Ward has said, "Experience is the process of growing expert by experiment," and this description applies to movement as to all other lines of mental development.

The time comes, we may suppose, when the child has learnt (as the result of repeated experience upon his "plastic" mind) that a particular unpleasant experience may be got rid of by a particular movement. By this time he will have reached the stage of cognitive development that involves Representation, so that when the unpleasant experience occurs the image of the movement necessary to get rid of it tends to recur, in accordance with the principle of Association. Then further advance is possible. The child need not wait for the painful object to be presented and the unpleasant experience to occur at all; it may be recalled to his mind when some component of that previous experience recurs, and he may then make the movement which was previously successful in getting rid

<sup>1</sup> See page 34.



of it. Thus aversive movements lead to "preventive movements," and such movements presuppose an advance to the ideational, as distinguished from the perceptual, level of cognitive development.

We have now, therefore, to consider the relation between ideas and movements. We find it to be the same relation as that which exists between percepts and movements. We find, by introspection, that the connection on both levels of cognitive development—presentative and representative—is the same. As, by the working of the nervous mechanism, perceptual activity leads to movement, so, by the working of the nervous mechanism, ideational activity leads to movement; that is to say, both kinds of cognitive activity tend to be followed by centrifugal nervous excitation. This amounts to saying, with Professor James, that all consciousness is motor. The student will do well to dwell upon this conception until he realizes that what is meant is that all Sensation, all Perception, all Imagination, all Ideation, tend to find an issue in bodily movement. There is here an ultimate connection between mind and body that is quite inexplicable; we can frame no conception of the nature of the connection whereby an idea sets on a movement—we can only take it as "given." The term "Ideo-motor" indicates the fact that the idea—or, what is the same thing, the activity involved in making an idea—is the psychic cause of the movement that follows it; there is no conscious process that we can discern by introspection, that intervenes between having an idea and carrying it out. We have an idea of something done; the thing tends to get done. Nearly all our actions happen in this way—that is to say, on the mere occurrence of an idea as cue—without any conscious effort on our part to act. The sight of food, knife, and fork arouses in us ideas which work themselves out in the action we call "dining"; we see a poker, and next moment, though perhaps engrossed in conversation, we find ourselves poking the fire. These are purposive actions that resemble in some respects the impulsive movements we have already considered. Like them, they are determined by Cognition and prompted by Feeling; but, unlike them, they are directed to the accomplishment of an end, present to consciousness as the starting-point of the process. For

instance, our apprehension of the poker involved the idea of a poker as an instrument for stirring a fire ; it is this idea which worked itself out in our action.

It must be observed that the idea which acts as the cue for the motor-process need not involve an image of a movement, though it may do so. We think, "That letter must go to the post," and that thought is sufficient to make us put on our hat, and perhaps mount our bicycle and ride in a certain direction to a particular destination, without our consciously making an image of the movements involved. When the movements form part of a familiar series—that is, when we have acquired facility in dealing with the whole sensory-motor series—an image of the end of the series (*e.g.* the letter slipping into the box) is enough to set the whole series going, each member of it in turn acting as cue for the next. But when the movement is not one of a familiar series, then the idea of the end may not be sufficient ; we may have to frame an image of the movement itself in order to bring it to pass. When we are learning to bicycle, we have to think through beforehand the movements that are necessary in mounting ; when we are expert, we think perhaps only of getting out into the country. When we are thoroughly expert, the image of the movement is indeed a hindrance, not a help ; we mount our bicycles more easily when we do not attend to the process.

Having considered the development of impulsive action and that form of purposive action that may be called Ideomotor, we are now in a position to examine the conscious processes that are necessary for the performance of a purposive action that involves more than the mere carrying out of a conative impulse, set up by an idea ; in this way, we approach the subject of Will, in the narrow meaning of the term, that of Voluntary Decision. The student is advised to recall some simple experience of his own of the kind that we have now to analyse, in order to seek in it the various ultimate factors of consciousness, and determine their relation to one another. What we want is an instance of the experience of "choice"—that is to say, of an act following upon conflict and deliberation. In a sense, every purposive act we perform involves choice ; we choose between two alternatives—one of doing and one of

not doing. For instance, when we took up the poker, in a sense, we chose to do so, for we might have refrained from the act; but, as we saw, all that we really did was to let the thought of handling the poker enter our mind. The object seemed to have the initiative here; we merely refrained from interference, letting the idea do with us what it would. Having an idea is, as we have said, the efficient cause of any purposive act; but sometimes we have at the same moment ideas which cannot all work themselves out, because they involve movements incompatible with one another. In such a case conflict precedes movement; the act is due to the prevalence in consciousness of one idea over another.

Let us take for examination a very simple case, involving no ethical difficulties. We are walking with a friend and we notice that our shoe-lace has become untied. It annoys us to feel our shoe loose and the lace getting muddy. Shall we stop and find a place where we can tie it up? That is an unpleasant, unseemly thing to do, but then our present position is also unpleasant and unseemly. Shall we try to forget it, however, and give all our attention to the subject we were discussing? Perhaps we manage to do so for a time, but when a break in the conversation comes, we remember our untied shoe-lace once more. This time it forces itself upon our attention; we wish it were tied, we shall never be comfortable until it is done—so, we are going to do it, we *will* do it. Here is a suitable place. We stop—and the image of the shoe-lace tied works itself out in our movements.

Let us now enumerate, in general terms, the factors in this process, from the moment of first noticing the untied shoe-lace:

1. There is an image of the end of the movement—in this case, the act accomplished, the shoe-lace tied. We think how pleasant it would be if the lace *were* tied. All purposive acts begin, in this way, at the end. Purpose, we have seen, means Activity directed towards a *foreseen* end. We begin, then, with the foreseeing—that is, by framing an idea of ourselves as we should be if the deed were done.

2. There are, possibly, images more or less vague of the movements necessary for the accomplishment of the end.



If it is a very simple matter to us to make a bow—that is, if we are so familiar with the process as to be sure that we shall find no difficulty in carrying it out—it is not likely that we shall frame images of the movements of the fingers that the tying requires; but in the case of a child, to whom making a bow presents difficulties, images of the movements necessary will, very probably, tend to come into consciousness. In our own case, it may be, we have visions of ourselves putting up our foot and bending over it, though not of the finger-movements. Still, such images are not essential to the act; the image of the end may suffice as the cognitive factor guiding the act.

3. There is a desire for the end—that is, we have an aversion from our present experience and an appetition towards another, present only in idea. This is the conative factor which prompts the act.

The whole of our state up to this point may be described as one of Desire. Desire implies (*a*) the presence in consciousness of an imagined experience of our own, (*b*) a tendency for that experience to be realised—that is, an appetitive impulse towards the end conceived.

4. There is painful feeling, so long as we keep in consciousness both the desired experience (the shoe-lace tied) and our present perceptual experience (our shoe loose). Our activity is hampered, inasmuch as attention is distracted between the thought of tying up our shoe together with the unpleasantness that that process would involve, and the thought of our present unpleasant experience. The subjective attitude of Pain must continue until either we banish the thought of shoe-laces, tied or untied, from consciousness altogether, or until the act thought of is accomplished. The feeling-element then is inevitably painful, since it is the accompaniment of attention to an idea which is not immediately allowed to bring into consciousness its natural consequences.

5. There is exercise of activity, set on by the aversive tendency from our present unpleasant experience, and taking the form of concentration of attention upon the desired experience. The result is that the image of the act accomplished and of the necessary means no longer occupies a marginal position in the field of consciousness; it comes into the focus to the exclusion of other thoughts.



(We find, perhaps, that we have lost some remark of our friend's.) Bringing the idea of the end of the action into the focus of consciousness is the efficient factor in the whole process; now the nervous mechanism sets the muscular apparatus at work and movement takes place. The idea works itself out, the act is accomplished.

It must be observed that in so far as initiation of movement is concerned there is no difference between an "ideomotor" act and a purposive act following upon voluntary decision. In each case an idea in the focus of consciousness issues in movement; but the act of "will" is, as we have seen, preceded by conflict and effort. It must be observed, further, that in the psychosis we have just analysed we have distinguished the four ultimate factors of mind: (1) Cognition (the *idea* of the end); (2) Conation (the appetitive-aversive impulse); (3) Feeling (pain arising from conflict of ideas); (4) Activity (concentrated attention upon the desired end).

The student is advised to take other concrete experiences of choice and to describe and analyse them in the way in which we have treated the simple act of tying a shoe-lace. He might take, for example, the conscious processes involved in making up one's mind to jump from a high wall or to get up in the morning. In examining these cases, he will do well to ask what it was that made him attend to the one idea that prevailed instead of to others, for this is a point which we have not yet considered. We may refer once more to the experience we have analysed and ask what it was that made us attend, at the critical moment, to one object of our desire—namely, a fastened shoe—rather than to another object of desire—*e.g.* our friend's conversation. There is no doubt that in the same circumstances different people would behave differently. Some would have no difficulty at all in banishing the idea of the loose shoe and its possible consequences. What does trifling discomfort matter when there is a chance of hearing or giving an opinion on some topic of real interest? In the minds of these people, then, no conflict would arise. Other people would simply be unable to endure the discomfort that a slight effort on their part could remedy; in their minds also no conflict would arise. In these cases, where nothing that can be called conflict

arises, we see quite clearly that the factor that determines whether sufficient attention be given to an idea for it to become fact or not lies in the *character* of the person concerned—character being understood as a permanent and effective system of desires—of desires, that is, on which the person habitually acts. The person who is able to ignore the solicitation of the untied shoe-lace has obviously a character of a different type from that of the more practical person who responds to it at once.

The explanation in those cases in which conflict does occur is the same. The determining factor is still character; it is the force of the prevalent system of desires that determines which of two desired experiences shall become fact. We act upon that idea which occupies the focus of consciousness at the critical moment, and it is our *self*—present and past—which determines what idea does so occupy our attention. We are not in the position of a spectator of opposing forces; we take sides in the conflict and the side with which we identify ourself is the one which *thereby* becomes victorious, and what side we take in any particular conflict is determined by our desires; we act always in accordance with our strongest desire. For instance, in the case of taking the jump that requires a good deal of effort, we wish to do the thing, to get the act accomplished, because it is what our companions are expecting of us; they have accomplished the feat, and we have reason to think that we too can do it, if we will—but it is exceedingly unpleasant to us to make the spring. On the other hand, to go back the way we came would be very dull, our friends would think us stupid, we should be vexed afterwards at not having made the necessary effort. On the whole, we would much rather be (or, at any rate, be *thought* to be) the person who could take—who is going to take—that jump; we *will* do it. Our hesitation is at an end; the thing is done; our strongest desire has prevailed.

Usually in cases of prolonged conflict, and always in cases of what we call temptation, there is a direct reference to our idea of our self—that is, to our own conception of our character. Our idea of our self comes to our aid and helps us to decide. Thus it is always *desire* that determines our act—the strongest desire always prevails;

but in a case such as that of resisting temptation, the desire is to alter the self—it is a desire to have an experience which accords with our conception of our ideal self.

We may illustrate this important point, further, by taking a concrete instance of temptation. Let us suppose a case of resisting the temptation to take away a book which, according to the rules, ought not to be removed from the library. The conflict here is between a desire to read in comfort in one's own room and a desire to think of oneself as a person who understands and accepts the privileges and obligations of a member of a community. [As we have said, the act of removing the book need not involve conflict. We may act immediately on the impulse to do the thing that conduces most to our personal comfort ; if we so decide, we act in accordance with "character." Another kind of person might also have no temptation. In accordance with *his* "character" of law-abidingness, he sits down and uses the book in the library. We are considering now only the case of decision after *conflict* of desires.] The determining factor if we successfully resist the temptation is the thought that one would rather be the person who fulfilled his obligations to the community than one who ignored them in order to promote his own particular well-being. If we succumb to the temptation it is because we keep in mind thoughts connected with the discomfort that abiding by the rule would entail and forget our aspirations. We feel free to act on either impulse—the impulse to live up to our aspirations and the impulse to seek immediate self-gratification—but the one with which the *self* identifies itself inevitably works itself out. The resulting act becomes a part of our experience, and thus, in its turn, determines the self, the conception of which will be the determining factor in a subsequent decision. The "freedom of the will" then consists in self-determination.

All these cases of conflict, whether questions of right and wrong be involved or no, are cases of deliberation issuing in decision ; they are, that is to say, acts of will, or, in the technical meaning of the term, "moral" acts. In every case of voluntary decision the strongest impulse prevails, and the process is the same whether the con-



flicting impulses be to jump or not to jump, to be or not to be. We choose to do the right thing, though it be unpleasant, because it is what the "self" approves; and our self is that which we think of as being able to do, going to do, this hard thing. When we have done wrong, after the event, we sometimes say, "I was not myself when I did that"; that is to say, that the self in accordance with the idea of which I acted at that time is not the self of which I now have an idea, and it is this self now present to my mind that I would rather have as my permanent self—not the other. The sense of effort we get in deciding in difficult cases comes from our having to attend to an idea of our self not strong enough to work itself out in opposition to the more immediate claims on our attention. The effort of attention involved in laboriously bringing the appropriate idea of self into the focus of consciousness is what Professor James speaks of as the "slow dead heave of the will."

The control of our actions—that is, what is commonly called Self-control—therefore depends upon the control of our attention, and all that we can do in this respect is to determine the direction of our attention; this is done by reinstating thoughts connected with the idea which ultimately issues in action. These thoughts are, as we have seen, thoughts of our *self* as going to have certain experiences or as going to reach a certain ideal. Control of conscious activity, then, depends upon our having conceptions of self that we can apply to the situation that demands our attention. If we have no suitable conceptions, we act on no definite principle, but in accordance with one idea after another as they occupy successively the focus of consciousness; or we do nothing, we are bewildered and helpless in face of the situation. When we are without a principle for action, in so far as we then act at all, our conduct is "unprincipled"—that is, un-self-controlled. As we have said, the great majority of even our purposive actions take place without conscious effort; the idea at once passes into movement, whether "ideo-motor" or "secondarily-automatic"; and as our conceptual system develops—that is, as our ideas increase in number and variety and determinateness, and as they grow more "organised"—they are more readily applicable to varying



situations. Our concepts thus become more adequate to the emergencies in which we find ourselves, and occasions for conflict and conscious self-control become less frequent.

We have spoken as though all acts of will—moral acts—involved the question, “Shall I *do* this or that?” but the choice to be made may be, “Shall I *attend* to this or that?” “Shall I *think* this or that?” The process of voluntary decision is the same in all cases; the choice is determined by our concept of our self, and that concept includes the idea of what we consider *worth* taking up into the self to be made part of it. Hence the supreme importance of all that goes to the framing of the conception of Self.

#### REFERENCES

- James : *Textbook*, Chaps. XXIII., XXVI., or  
*Principles*, Vol. II., Chaps. XXIII., XXVI.  
Stout : *Groundwork*, Chap. XVIII.  
*Manual*, Book IV., Chap. X.  
Ward : *Ency. Brit.*, Vol. XX., pp. 42-43, 72-75, 85.

## GLOSSARY

### GIVING THE MEANING OF TERMS AS USED IN THIS WORK

**Activity** : one of the three ultimate factors of consciousness, bearing a reciprocal relation to Affection (Passivity or Feeling); co-extensive with Attention.

**Affection** : an ultimate factor of consciousness, reciprocally related to Activity; synonymous with Feeling (1).

**Analysis** : the mental operation of distinguishing, in turn, various aspects of one complex thing. The result of Analysis is a new synthesis.

**Appetition** : the "endeavour" of the mind "towards" something. It implies Aversion from some other thing.

**Assimilation** : the modification of sense-experience due to (a) the mind's inherent plasticity, and (b) the successive presentations of the same object.

**Association** : the principle, formulated by psychologists, according to which cognitive contents of consciousness are re-instated.

**Attention** : Activity as related to the object directly affected.

**Aversion** : the "endeavour" of the mind "from-wards" a thing. It implies Appetition. Appetition-Aversion, synonymous with Conation.

**Cognition** : an ultimate factor of mind; the becoming-aware of objects; an ultimate relation between Subject and Object.

**Conation** : Appetition-Aversion.

**Conception** : the form of Cognition whereby particular objects are apprehended in a general aspect; synonymous with Ideation, Intellection, Thought.

**Conceptual System** : the ideational contents of a person's mind, regarded as forming a whole in process of differentiation and organisation.

**Consciousness** : synonymous with Mind.

**Co-ordination** : a process of synthesis, whereby wholes and series become parts of other wholes and series—*e.g.* sensory-motor co-ordination consists in making one series from different series of sensations and movements.

**Decision, Voluntary**: synonymous with Will, Volition, Choice.

**Desire**: the representation of an experience together with a tendency for the experience to be realized.

**Differentiation**: the effect of Assimilation; the modification of sense-experiences whereby they become increasingly unlike one another.

**Emotion**: the apprehension of a situation as tending to further or to thwart some conation, together with the accompanying bodily disturbance.

**Experience**: (1) the sum of the conscious processes (cognitive, affective, active) of an individual; (2) the "process of growing expert by experiment."

**Extensivity**: that quantitative aspect of Sensation which affords a basis for differentiation resulting in the perception of objects as extended.

**Feeling**: (1) Pleasure-Pain and Appetition-Aversion—synonymous with Affection; (2) Pleasure-Pain (Hedonis-tone).

**Ideation**: synonymous with Conception, Intellection, Thought.

**Ideo-motor**: applied to movements, set on by the mere idea of a thing presented to consciousness, without an explicit volition.

**Imagination**: the form of Cognition whereby objects previously perceived are re-instated in consciousness—*i.e.* represented.

**Impulse**: (1) the action of nervous matter, a physiological term (*e.g.* afferent, efferent impulse); (2) a conation—*i.e.* a tendency to action set on by Feeling (appetitive, aversive impulse).

**Impulsive**: applied to movements set on by Feeling.

**Instinctive**: applied to impulsive movements, directed towards an end not present to consciousness.

**Intellection**: (1) synonymous with Ideation, Conception, Thought; (2) the synthesizing of ideas whereby a conceptual system is formed.

**Intensity**: a quantitative aspect of (a) Sensation, (b) Feeling. Degree of Intensity is determined by comparison of experiences, not by reference to a unit.

**Mind**: that of which individuality can be predicated; synonymous with Consciousness.

**Moral**: appertaining to the Will; synonymous with Volitional, Voluntary.

**Movement**: (1) all muscular change, (2) muscular change presented to consciousness.

**Object**: that which is in relation to a Subject; used (1) for mental objects or the cognitive contents of consciousness (*i.e.* presentations) and (2) for external things, material and mental, (*e.g.* "objective truth" or science), which may be presented to consciousness.

**Perception**: the form of Cognition whereby external objects are apprehended.

**Person**: the individual or self constituted by a knowing, feeling, active consciousness.

**Presentation:** (1) any cognitive content of consciousness; (2) sensations and percepts (Primary Presentations) as distinguished from images and ideas (Secondary Presentations or Representations).

**Process:** a series of changes (material or mental) leading to an end; the means whereby an end is realized.

**Psychosis:** the whole of consciousness at any one moment, including, therefore, cognitive, affective, and active factors.

**Purpose:** an end or aim present in consciousness (as idea) as the starting-point of processes by which the end may be realized.

**Reflex:** applied to movements set up immediately and uniformly upon the occurrence of a particular stimulus; a physiological, not a psychological, term.

**Retentiveness:** the characteristic of mind involved in its plasticity, which makes possible all mental growth or development.

**Self:** an individual consciousness; synonymous with Person.

**Sensation:** the form of Cognition conditioned by physical stimulation and neural irritation.

**Synthesis:** (1) the grouping or combination of sensory series; (2) the mental operation of thinking various aspects together as a whole; it implies analysis.

**Subject:** one term of the relation implied by consciousness.

**Understanding:** a form of Ideation; the process of apprehending, through the medium of language, an idea in another person's mind.

**Volition:** the self-conscious direction of Attention to a desired experience, which thereby becomes real; synonymous with Will, Choice, Voluntary Decision; (used by some psychologists as synonymous with Activity).

**Will:** synonymous with Volition, Voluntary Decision.



# QUESTIONS AND EXERCISES <sup>1</sup>

## CHAPTER I

### THE METHOD OF PSYCHOLOGY

1. Define Psychology and make clear the meaning of the terms you use in your definition.
2. How does the psychologist obtain the data from which he generalizes?
3. What is supposed to be the chief difficulty in Introspection? Do you find it a real difficulty, and, if so, how do you overcome it?
4. I say "Fetch my books!" to my dog, and he does so. A bystander remarks, "What a sensible animal!" What method of observation has he used and what grounds has he for his inference?
5. "I knew he was annoyed." By what means could this knowledge have been attained?
6. Make a statement, giving the grounds of your opinion, of what you judge to be the state of mind of your neighbour (1) in a railway-carriage, (2) in a lecture-room.
7. Describe some psychological experiments you have yourself tried or read of.

## CHAPTER II

### THE GENERAL ANALYSIS OF MIND

1. Describe your state of consciousness when reading a list of examination results in which you have an immediate personal interest.
2. What is the Stream of Consciousness?
3. What is a psychosis? Analyse a psychosis in general terms, explaining clearly the meaning of the terms you use.
4. Discuss the relations of the factors of consciousness to one another. Is attention incompatible with anger? Why does passion tend to make a man eloquent?
5. What do you understand by the *development* of consciousness?

<sup>1</sup> My thanks are due to the authors and the publishers (Messrs. Macmillan, Fisher Unwin, Hutchinson, and Gay & Bird) of the books quoted in these questions, for their permission to make use of the extracts.—L.B.

# CHAPTER III

## SENSATION

1. Distinguish between (1) Sensation, (2) Neural Excitation, (3) Physical Stimulation.
2. On what principles can sensations be classified? What different kinds of sensation do you distinguish?
3. What is Organic Sensation? Contrast it with other sensations.
4. In what ways would you compare :
  - (a) The sensation caused by a note sounded on the piano with that caused by a whistle from an engine ;
  - (b) The sensation experienced when you prick your finger with that from a blow on the head ?
5. What is meant by Psycho-physical Parallelism? Can it be regarded as a final statement of the relation between mind and body ?

# CHAPTER IV

## PERCEPTION

1. Define Perception and explain its relation to Sensation.
2. Do we need any other data than sense-experience to enable us to perceive things?
3. What is the basis of the possibility of progress in both mental and motor process? Explain the importance of Retentiveness.
4. Compare a baby's apprehension of a red woollen ball at the age of (a) six months, (b) two years.
5. Illustrate from a first game of tennis what is meant by—
  - (1) Primary Meaning of sense-impressions ;
  - (2) Acquirement of Secondary Meaning ;
  - (3) Grouping of sense-impressions ;
  - (4) Motor-adaptation.
6. Analyse in general terms the processes involved in—
  - (1) Making a stroke at billiards ;
  - (2) Threading a needle ;
  - (3) Rowing.

Why is it more difficult to thread a needle than another person holds? What constitutes the special difficulty of backing with the right and pulling with the left oar simultaneously?

## CHAPTER V

## IMAGINATION

1. Analyse the mental factors involved in knowing that a lawn is being mown when only a series of sounds is heard.

2. Describe the cognitive contents of your consciousness when seeing, from beyond hearing distance, the gesticulations of a man in Hyde Park surrounded by a crowd.

3. Why do short-sighted people who usually wear eye-glasses find it difficult to follow a speaker or a lecturer without their glasses?

4. I "perceive" a rose and "imagine" a rose. Enumerate the differences between my two experiences.

5. From observation of a child illustrate the theory that images originate in the course of the process of motor-adaptation to environment.

6. In my walk I come to a spot where I once saw an accident happen. Explain psychologically the reason why I immediately think of the accident.

7. If I meet a man in the street who resembles two of my acquaintances, why should I be reminded of one rather than of the other?

8. Distinguish between—

- (1) Reproductive and Constructive Imagination;
- (2) Interpretative and Originative Imagination.

9. Analyse the imaginative processes—

- (1) In De Rougemont's mind when writing his adventures;
- (2) In the minds of those who heard him relate them.

## CHAPTER VI

## IDEATION

1. Analyse carefully the process of understanding another person's thought. What are the forms of cognitive activity that such a process presupposes?

2. Distinguish between (1) the perceptual, (2) the imaginative, (3) the ideational elements involved in—

(a) Playing a game of croquet or chess;

(b) Making a chemical experiment or identifying a botanical specimen.

3. What is meant by saying that ideas make particular experiences determinate? Give instances from your own experiences [*e.g.* the application of your ideas of movement and of pressure to your perception of "tilted" and "crumpled" rocks, or of your idea of Representative Government to your apprehension of (a) parliamentary procedure in connection with a particular Bill, or (b) an Election Petition Enquiry].

4. Discuss the relation between Perception, Imagination, and Ideation as exemplified in the following experience :

"In the afternoon we all drove towards Bayonne to watch the ships struggle over the bar at high water. As it happened we only saw one pass out, a countryman for Cardiff. A string of others were waiting to go, but a little steamer from Nantes came first, and having secured her station, found she had not force enough to make the bar, and the others remained swearing impatiently behind her. The Nantes steamer was like Ireland." —Mr. John Morley in *Life of W. E. Gladstone*,<sup>1</sup> Vol. III., p. 481.

5. Analyse the process of getting a new idea. What are the conditions that favour the origination of an idea?

6. What is a name? Show how (1) Language, (2) Imagination, both further and hinder Thought. Illustrate from your own experience.

## CHAPTER VII

### ACTIVITY OR ATTENTION

1. Examine the meaning of the term, "Conscious activity," and apply the conception to (1) Sensations, (2) Percepts, (3) Images, (4) Ideas.

2. What is meant by (1) a "state of consciousness," (2) a "field of consciousness," (3) the "focus of consciousness," (4) the "margin of consciousness"?<sup>2</sup>

3. It is sometimes said that children are, by nature, very observant, and it is implied that as they grow older they lose their power of observation. Examine how far there is truth in the statement and in the implication.

4. "World-construction is the work of all of us." Examine this statement.

5. At the appearance of an orator on the platform the audience with one accord settle themselves to listen. Describe the means they probably use and explain them from a psychological standpoint.

6. What would (1) a child, (2) an uneducated adult, (3) a native of Uganda, (4) a scholar or an artist, observe in (a) a college library, or (b) a collection of old masters?

## CHAPTER VIII

### FEELING OR AFFECTION

1. What do you include under the conception of Feeling?

2. Formulate a theory of Pleasure-Pain, adducing evidence in support of it from (1) Perceptual Experience; (2) Imagination; (3) Ideation.

3. Why is it pleasant (1) to stroke sealskin; (2) to skate on smooth ice; (3) to see a man-of-war launched; (4) to watch a kitten at play or a sea-gull's flight; (5) to hear rhymed verse?

<sup>1</sup> Macmillan.



4. What constitutes the pleasure of (1) reading a good detective story ; (2) working a rider in Euclid or making a psychological analysis ; (3) guessing a riddle ?

5. A little boy, on being allowed to choose his birthday fare, decided upon liver and bacon and Banbury cakes for breakfast, the same for dinner, and the same for supper. How would the boy's experience illustrate the psychological theory of the connection between (1) the Frequency and Duration of Sensation, (2) the Intensity of Sensation, and (3) the accompanying Feeling-tone ? Illustrate the theory by reference to sensations other than Taste.

6. Illustrate the connection between pleasure and (a) congruity of images, and (b) relevance of ideas.

7. If the theory of Pleasure-Pain formulated in this chapter be correct, how do you account for the fact that it is not painful to go to sleep ?

## CHAPTER IX

### THE EMOTIONS

1. What is an Emotion ?

2. Can you devise any scheme for classifying Emotions ? Discuss any possible principles on which you might proceed. Would the nature of the feeling factor be one ?

3. What do you mean by the *expression* of Emotion ? Can you distinguish between an emotion and its expression, and between bodily "manifestations" of an emotion and purposive action following an emotion ?

4. Describe fully any emotional experience of your own and analyse it in general terms, making clear the distinctions referred to in the last question.

5. "A traveller in New Zealand tells how he was roused at night by the most doleful cries, and went out to see what human creature was in misery. He found it was a Maori woman rejoicing over a meeting with her long-lost son." In connection with this Maori woman, discuss the theory that emotion is the cognition of a bodily state set up by a percept.

6. What is (1) an emotional disposition ; (2) a sentiment ? Illustrate from your own experience.

7. "Are we downhearted ? *No !*" Give psychological reasons for the popularity of this catchword.

## CHAPTER X

### THE WILL

1. Determine the meaning of the following terms—Movement, Action, Volition, Purpose, Voluntary Decision, Choice.

2. What is a Reflex Movement? What theories have been formed as to the origin of reflex movements?

3. What is (1) an Impulsive Movement; (2) an Instinctive Movement? Make clear the difference between an Impulsive and a Reflex Movement, and between an Instinctive and a Purposive Movement.

4. Trace the development of purposive movements from impulsive movements, making clear the part played by feeling.

5. What is (1) an ideo-motor action; (2) a secondarily automatic action? Give examples.

6. Classify the movements that you make during an evening at a dinner-party.

7. Describe the experience of selecting from a library shelf a book for holiday reading and analyse it in general terms, noting the (1) cognitive, (2) affective, (3) active factors involved.

8. Three candidates for a public appointment had been interviewed and were waiting in an adjoining room for the vote to be taken. It was possible for them to overhear the announcement of the voting. Two of them moved to the door to hear better; one refrained from moving. Analyse their mental processes, and explain why they behaved differently in the same circumstances.

9. What is Character?

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## GENERAL QUESTIONS

1. Explain clearly what is meant by the *standpoint* of the psychologist. How does it resemble or differ from the standpoint of (1) the geologist; (2) the logician; (3) the metaphysician?

2. Sir Anthony Absolute, in a rage with his son, who is perfectly calm, cries, "Can't you be cool like me?" How does this illustrate the difficulties of psychological investigation?

3. Give instances of what seem to you to be erroneous interpretations of the behaviour of (1) dogs and cats, (2) children, and, if you can, trace the source of the error.

4. Comment from a psychological point of view upon the following:

(a) "Each in his hidden sphere of joy or woe  
Our hermit spirits dwell and range apart." (Keble.)

(b) "Yes! in the sea of life enisled  
With echoing straits between us thrown  
Dotting the shoreless watery wild  
We mortal millions live *alone*." (M. Arnold.)

5. Distinguish between (1) the analysis of a state of mind, and (2) the classification of states of mind.

6. In what different ways has Mind been analysed by psychologists? Which analysis do you adopt? Give your reasons.

7. What is (1) Analytic, (2) Genetic Psychology? Discuss the relation between them.

8. Explain as clearly as possible what is meant by Mental Growth or Development, taking into consideration each of the different factors of consciousness.

9. Describe the different relations which appear to exist between yourself as subject and such an object as a riddle to be solved, according as you consider the cognitive, affective, and active factors of consciousness.

10. Enumerate and describe the general characteristics of Sensation.

11. Describe and differentiate the parts of the probable sensory experience of a baby (*a*) when he tries to seize his foot; (*b*) when he falls from his warm cradle to the floor.

12. What are the implications of the facts that, when some one has trodden on your foot, you know quite well which foot it is, and can distinguish the part touched and the extent of the hurt?

13. "The pure sensation is a psychological myth." Comment on this.

14. Analyse the processes by which a child learns to hem or to write.

15. What constitutes the difference between the artist's sensations of colour and a child's?

16. Why are children often not surprised by conjurer's tricks?

17. How do images arise? May they be regarded in any sense as ultimate mental contents?

18. What is a "train of images"? How is a "train" constituted?

19. Compare the results of the working of Association in the case of Miss Bates (in "Emma") and of Mrs. Nickleby.

20. Give a psychological explanation of the working of the mind of the little girl, who, on being asked what she would do with £5 if she had them, said that she would pull the communication cord of a train.

21. "I wandered lonely as a cloud  
That sleeps on high o'er vales and hills."

Using this as an illustration, describe the mental process which results in the formation of similes. In the experiences to which Wordsworth refers in this poem, distinguish the (1) perceptual, (2) reproductive, (3) originaive elements.

22. Describe the difference between the mental processes of a person telling a story well, bringing out only essential points, and of a person who, in telling a story, mentions every irrelevant detail.

23. The person who looks at a picture, the child who listens to a story, the narrator of an incident, the novelist, the artist, the poet, all exercise imagination. Distinguish between the different kinds of imagination they use.



24. A dog with a walking-stick in his mouth makes many attempts to run between two stumps half a yard apart. By accident the position of the stick is changed and he gets through. He then tries again in the same way as at first. A child would probably have profited by the first experience. How do you account for the difference?

25. Analyse the process by which you arrived at a conception of Natural Selection. How does that conception determine your apprehension of (a) a weedy garden-border, (b) a barnacle- and limpet-covered rock?

26. Examine the relation between the images and the ideas that went to the making of—

(a) Shakspeare's sonnet (lxxiii.), "That time of year thou mayst in me behold";

(b) Tennyson's "Flower in a crannied wall";

(c) Shelley's "Skylark."

27. Distinguish (1) the perceptual, (2) the imaginative accompaniments of your present conception of yourself.

28. What is the difference between a word and an algebraic sign? Discuss the following: "A word is an instrument for thinking about the meaning which it expresses; a substitute sign is a means of *not* thinking about the meaning which it symbolizes."

29. "I should have thought he was the sort of man to have a good strong grasp of a subject."

"I should have thought," replied T, "that he was the sort of man to have a good strong *nip* of the subject."

*Life of W. E. Gladstone*, Vol. III., p. 488.

Consider the relation between the Words, Images, and Ideas which passed through the mind of the second speaker.

30. In what lies the difference between a child's power of observation and that of a research student?

31. What is meant by (1) Adjustment for Attention, (2) Pre-perception?

32. Compare the conditions of your mental activity (1) when you are absorbed in an interesting play at the theatre, (2) when you are trying to carry on a dull conversation, and (3) when you are on the point of falling asleep.

33. Why is it impossible for some people to attend to certain subjects for any appreciable length of time? Give illustrations.

34. To what does the rose owe its "victorious beauty"; sherbet, its fascination; the diamond, its position among gems?

35. Why does a child get more pleasure from an india-rubber than from a woollen ball?

36. The lecturer, who had been speaking for half-an-hour, contemplated his audience. On one face was depicted interest and lively pleasure; another hearer was stifling a yawn; while a third wore an expression of pained perplexity. Give psychological reasons for the different effects of the lecture.



37. Illustrate the connection between Pain and Intensity of Sensation. From this point of view comment on the following :

- (a) "Enough ! no more,  
'Tis not so sweet now as it was before."
- (b) "O thou weed,  
Who art so lovely fair, and smell'st so sweet  
That the sense aches at thee . . ."
- (c) "Dio of a rose in aromatic pain."

38. What is the psychological explanation of the consolation to be found in bad weather that one has prophesied ?

39. What psychological significance has the fact that a sound that strikes fear to your heart when alone in the night is hardly noticed when in the daylight you are surrounded by friends ?

40. How is emotion controlled ? Illustrate by reference to possible means of overcoming jealousy.

41. Is Jealousy an emotion or an emotional disposition ?

42. "Emotions are episodes in the life-history of a sentiment." Take the sentiment of Liberty or respect for Nationality and illustrate from incidents in Mr. Gladstone's career.

43. Discuss and illustrate the working of the Law of Association in (1) emotional states, (2) emotional dispositions and sentiments.

44. Describe in general terms the conscious experience of—

- (1) A kitten at play with falling leaves ;
- (2) A dog burying a bone ;
- (3) A Grace Darling pulling to the rescue ;
- (4) A Casabianca on the burning deck.

45. How is it that a sane person may sometimes be seized by an impulse to throw himself over the edge of a precipice ?

46. What is "Inter-subjective Intercourse" ? How does it aid the development of the conception of self ?

47. Describe and analyse the experience of (1) resisting, (2) succumbing to the temptation to put off writing a letter.

48. From a psychological standpoint discuss Hamlet's difficulty in arriving at a decision to kill his step-father.

49. "Will is self-conscious activity." Discuss this.

50. What is meant by (1) Self-determination, (2) Self-control ?

51. Is there any such thing as Self-sacrifice ?

52. Consider the psychological significance of the following :

- (1) "How easy is that bush supposed a bear !"
- (2) "The crow doth sing as sweetly as the lark  
When neither is attended ; and, I think,  
The nightingale, if she should sing by day  
When every goose is cackling, would be thought  
No better a musician than the wren."

(3) "My memory takes me back across the interval of fifty years to a little ill-lit room . . . and instantly there returns to me the characteristic smell of that room, the penetrating odour of an ill-trimmed lamp, burning cheap paraffin. . . . All this first

scene will go, in my mind, at least, to that olfactory accompaniment. . . . You must not imagine that . . . the smell of the lamp engaged my attention at that time to the slightest degree. . . . My mind was entirely occupied then by graver and intenser matters."—H. G. Wells, *In the Days of the Comet*,<sup>1</sup> pp. 10, 14.

(4) "It was absurd to be obliged to climb, with a consuming soul, into a cab. Why does nothing seem incongruous or humiliating to the happy? To happy people—bent on pleasure or interesting business—omnibuses, cabs, and trains are accepted gaily. But misery renders the mind sensitive and critical; it fears to be made grotesque, and the first pang of discontent is also the first yearning for pomp—which is a disguise—or failing that, invisibility."—John Oliver Hobbes, *The Dream and the Business*,<sup>2</sup> p. 77.

(5) "Only in the country is it possible to note the change of morning into mid-day, of mid-day into afternoon, and of afternoon into evening; and it is only in the country, therefore, that a day seems stretched out into its proper length."—*Mark Rutherford*,<sup>2</sup> II., p. 118.

(6) "Time travels in divers paces with diverse persons," etc.—*As You Like it*, Act. IV., Sc. ii.

(7) Words are wise men's counters and the money of fools.

(8) "Gamp's my name and Gamp's my natur'."

(9) (a) "To know principles, although at first it seems as if the consciousness of them is of no service to us, is really an enormous benefit. The more we have, if we have only the gift to manage them, the more real and less shadowy shall we be. Let it ever be remembered that the reality of an act or of a man is in exact proportion to the number of principles which lie in that man or act."—*Mark Rutherford*, II., p. 160.

(b) "Manners makyth man."

(10) (a) "As a man gets older, he will find that the tendency grows to admit nothing into his mind which does not corroborate something he has already believed and that the new truth acquired is very limited. If he wishes to keep himself young he must use his utmost efforts to maintain his susceptibility."—*Mark Rutherford*, II., p. 164.

(b) The chapter of accidents is the Bible of fools.

(11) (a) "Where Michael's eye was fixed, there his foot followed. He was not of those who rend themselves by violent conflict. If he had ever been asked to give his reason for any action of his life, from the greatest to the smallest, he would have looked at the questioner in mild surprise, and would have said, 'It was the only thing to do.' To him vacillation and doubt were unknown. A certain wisdom could never be his, for he saw no alternatives. He never balanced two courses of action against each other. . . . Michael saw only one course, and took it."—Mary Cholmondeley, *Prisoners*,<sup>3</sup> p. 27.

<sup>1</sup> Macmillan.

<sup>2</sup> T. Fisher Unwin.

<sup>3</sup> Hutchinson.

(b) "One would like to have a record of all that passed through the soul of Ulysses when he was rowed past the Sirens. In what intellectually subtle forms did not the desire to 'stay clothe itself to that intellectually subtle soul? But he had bound himself beforehand, and he reached Ithaca and Penelope at last."—*Mark Rutherford*, II., p. 163.

(12) "If you have ever observed how courteous and gracious and mannerly you feel when you don a beautiful new frock; if you have ever noticed the feeling of reverence stealing over you when you close your eyes, clasp your hands, and bow your head; if you have ever watched your sense of repulsion toward a fellow-creature melt a little under the exercise of daily politeness,—you may understand how the adoption of the outward and visible sign has some strange influence in developing the inward and spiritual state of which it is the expression."—K. D. Wiggin, *Rebecca of Sunnybrook Farm*,<sup>1</sup> p. 222.

(13) "Principles are more useful to us in time of danger when they are presented to us incarnated in living men. . . . The reference to men rather than to abstractions puts us in good company; we are conscious of society and of fellowship, we see the faces of the heroes looking on us and encouraging us. Plutarch . . . says, "Hereupon also it followeth by good consequence that they who have once received so deep an impression in their hearts take this course with themselves, that when they begin any enterprise . . . or when any sinister accident is presented to them they set before their eyes the examples of those, who either presently are or heretofore have been worthy persons, discoursing in this manner: What is it that Plato would have done in this case? What would Epaminondas have said to this? How would Lycurgus or Agesilaus have behaved themselves herein? After this sort (I say) will they labour to frame, compose, reform, and adorn their manners, as it were, before a mirror or looking-glass. . . . The remembrance and thinking upon great and worthy men represented suddenly unto those who are in the way of perfection, and taking hold of them in all passions and complexions which shall encounter them, holdeth them up and keepeth them upright that they cannot fall."—*Mark Rutherford*, II. p. 167.

<sup>1</sup> Gay & Bird.





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